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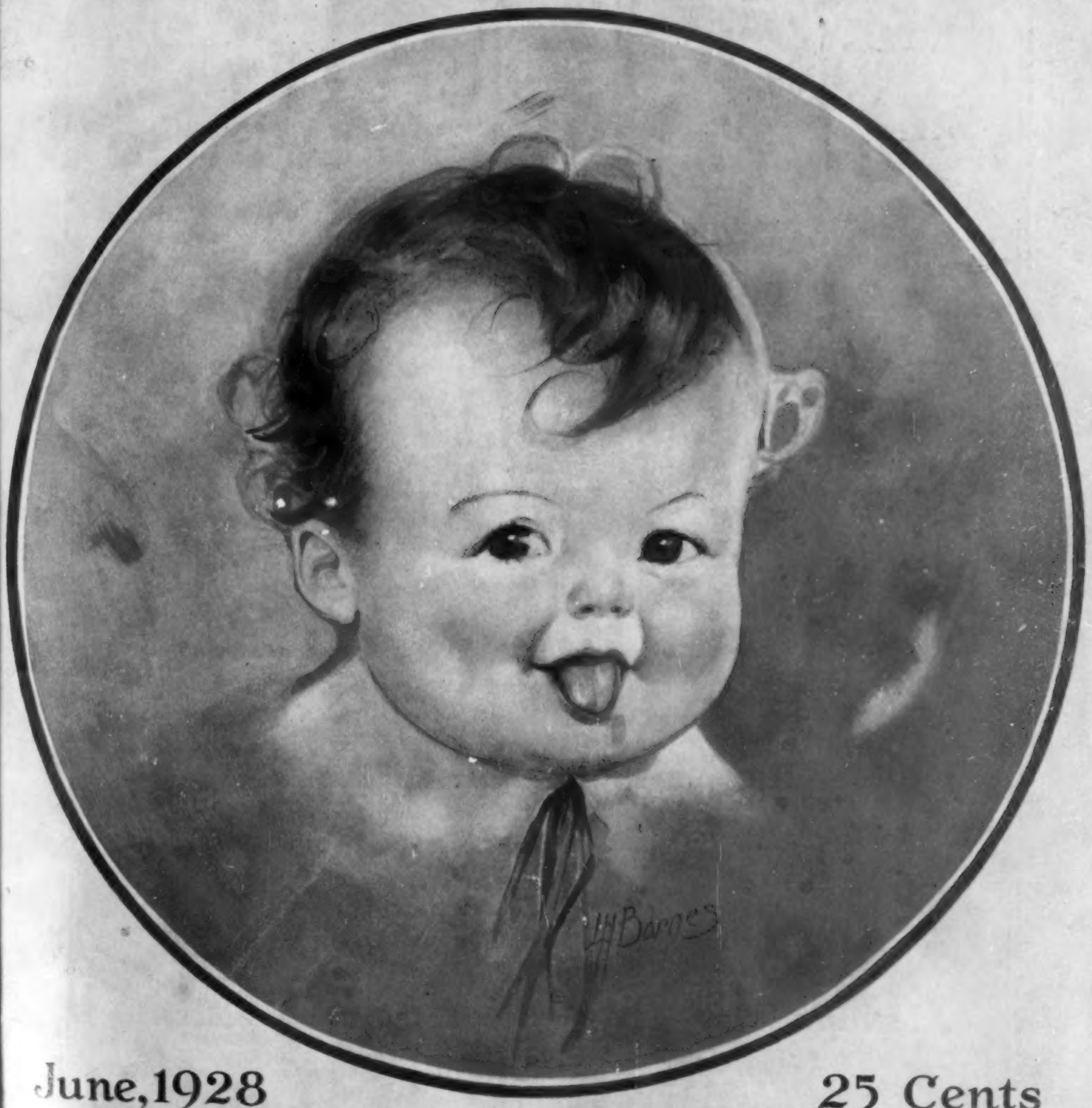
HYGEIA

THE HEALTH MAGAZINE

Published by the American Medical Association



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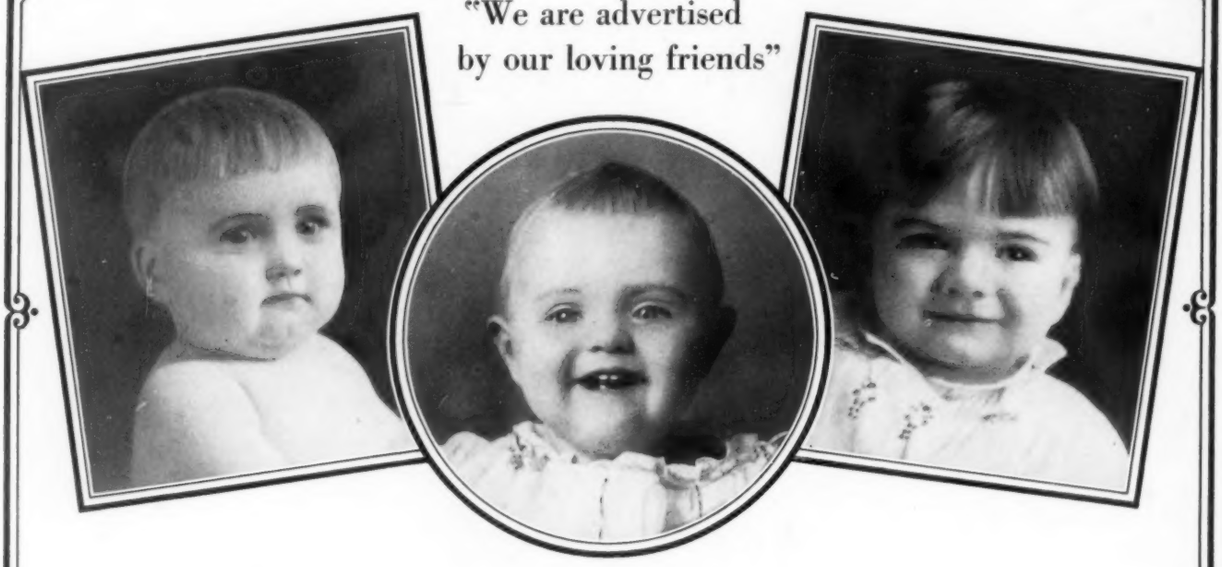

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HYGEIA

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Contributors to This Issue

SINCE much of the alarm currently felt about modern young persons arises from the belief that they are wrecking their health, it is helpful to have the point of view of DR. REGINALD FITZ, associate professor of medicine at Harvard Medical School, who recounts his observations during a recent study.

DR. A. LEVINSON is a specialist in the diseases of children who has given especial attention to tuberculosis. Perhaps there are other old buildings that may be reconstructed for summer camps according to the suggestions in the story of Greybarns told by W. H. MATTHEWS, director of family welfare of the Association for Improving the Condition of the Poor.

JAMES E. FOSTER often writes articles on sanitation for HYGEIA. W. B. MACK is a scientific gardener, associate professor of vegetable gardening at Pennsylvania State College. The eradication of malaria has played a large part in the industrial development of the South in the past decade. DR. L. B. MCBRAYER of Raleigh and THERESA DANSDILL, director of health education of the North Carolina Tuberculosis Association, tell the story of the rehabilitation of one region.

A high point in the development of industrial health service is described by A. E. KIDD, general supervisor of personnel service in the corporation of which he writes. MAUD A. BROWN tells more of the Fargo child health demonstration in this issue. DR. KATE CAMPBELL MEAD, of Connecticut, is an extensive traveler. She has spent the past winter in India, where she has seen tropical conditions at first hand.

ELSIE F. RADDER is a free lance writer who has written numerous articles on health subjects. Hay-fever sufferers whose troubles start in June may learn what plants to avoid in R. P. WODEHOUSE'S article on early summer hay-fever. Another of DR. J. A. MYERS' series on tuberculous physicians tells of a genius who accomplished much though his life was short.

GLADYS LLOYD is the author of "Deafness with All Modern Conveniences," which appeared in the February HYGEIA. With this issue end the wonderful adventures of a little boy who learned about germs, written by DR. HOWARD W. HAGGARD first for his own youngsters. That the story is appreciated by other children is shown in the spontaneous letters received from a North Dakota school and printed in this issue.

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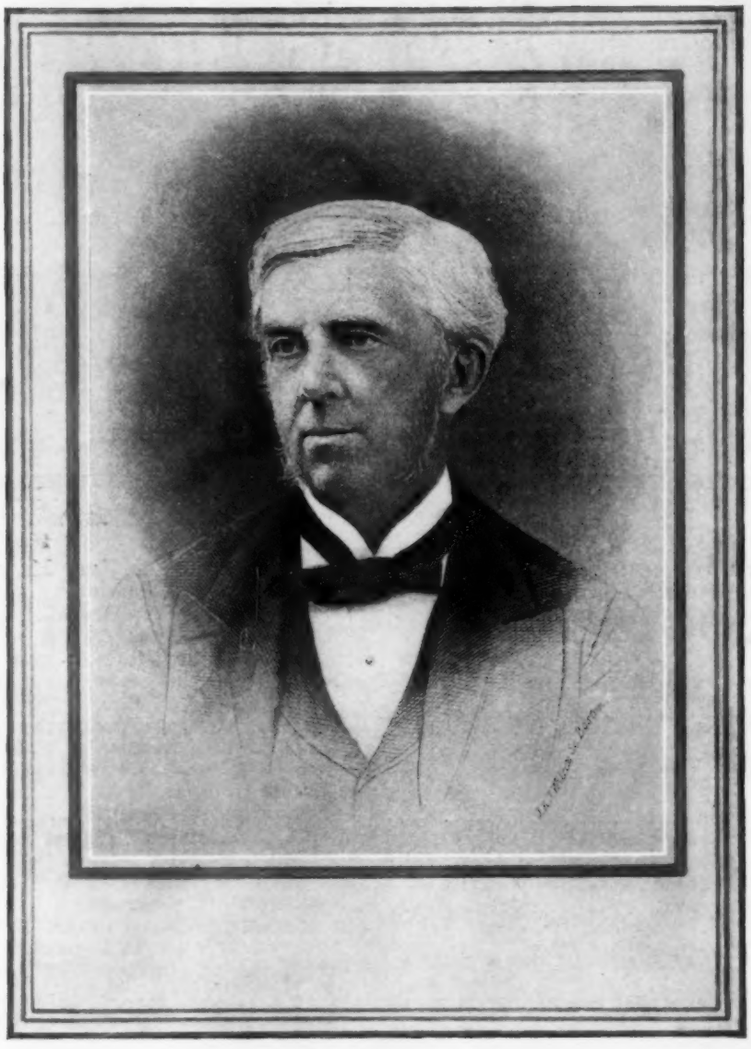


HEROES OF AMERICAN MEDICINE

XIII. Oliver Wendell Holmes

AMONG the great figures in American medicine that of Oliver Wendell Holmes towers large. He was born in Cambridge, Mass., Aug. 29, 1809, and was of English descent. His ancestors include a well known lawyer and one of the earliest settlers in America. Doctor Holmes' mother, Sarah Wendell, was a direct descendant of one of the early governors of Massachusetts Bay Colony.

Oliver Wendell Holmes was graduated from Harvard in 1829. He then studied law for one year and finally turned to medicine, being a pupil of the distinguished James Jackson, whose biography appeared in HYGEIA *for March. Before taking his medical degree he spent three years in Europe and then returned to Massachusetts, where he took his medical degree and began practice in Boston in 1836.*

Almost immediately he began to write, beginning at first with medical essays but turning rapidly to other subjects. In 1843, Doctor Holmes published his famous essay on the "Contagiousness of Puerperal Fever," antedating the work of Semmelweiss on the same subject. In 1847, he was made professor of anatomy and physiology in Harvard Medical School, and this position he held for thirty-five years. He was dean of the medical school from 1847 to 1853. His lectures on anatomy were usually given at 1 o'clock, five lectures on anatomy being provided each week; Dr. Holmes was given the 1 o'clock hour because it was the last of five hours of lecturing given to the students, and none of the other professors could hold them.

His private medical library contained a collection of 1,000 volumes, which he presented to the Boston Medical Library, of which he was president for thirteen years.

Doctor Holmes was one of the most philosophic writers in medicine, a clear thinker and an excellent teacher. So great were his accomplishments in fields outside of medicine that the public has little appreciation of what he meant to medicine itself. He died in 1894.

The Modern Young Person

By Reginald Fitz

It is a mistake to criticize the modern young person too severely.

Dorothy Holmes

ONE hears at the moment a great deal of discussion about the modern young person. Elderly people raise their eyebrows and talk with bated breath of how badly the young folk are behaving, how they drink, have no great moral sense, are generally reckless. If one believed the gossip floating about, one would conclude that the modern generation was headed straight for the dogs and that the future welfare of the country was in jeopardy.

The young people, on the other hand, continue with their adventures of living, calm and unruffled, and appear utterly indifferent to what is being said about them. With so much smoke emanating from the older generation, one naturally wonders how much fire there is behind.

From the Doctor's Point of View

Within the past few months I have had occasion to conduct physical examinations on a group of normal, healthy, college trained girls and boys ranging in age from 19 to 25, and in so doing I have learned a great deal about them and their problems. It is perhaps not untimely to discuss certain of the impressions that they have left with me.

Those most directly responsible for our present type of youth today are, naturally, their own fathers and mothers. Thus a brief analysis of the preceding generation is necessary in order that we may understand the present one.

In this country about thirty years ago there developed an increasingly large group of people with a new point of view on living, who set the pace for the rest. Money was made easily so that there was time to cultivate the habit of leisure. Methods of rapid transportation and communication were developed; electric lights and good furnaces came into general use.

Fashionable Life a Generation Ago

Young couples began to live in the country and went in seriously for outdoor sports. Country clubs and large country places sprang up everywhere. Golf, tennis, hunting and polo occupied increasing space in the papers. Women became interested in these games and thus were driven to shorten their skirts and loosen their corsets. The midvictorian fathers and mothers were disturbed by the way in which the modern youngsters carried on and felt that they were undignified, rude and far too free and casual in their actions. Nevertheless, the world went on and the manners that came into vogue about the year 1900 persisted and became increasingly popular.

There can be little doubt that fashion has had much to do with shaping the destiny of the present generation. For their parents, Mark Sullivan in his history of "Our Times" gives

Charles Dana Gibson and Richard Harding Davis a great deal of credit. He quotes an interesting abstract from the New York World.

> Gibson has drawn the true American girl. He is the American Du Maurier. . . . Before Gibson synthesized his ideal woman, the American Girl was vague, nondescript, inchoate; there was no type of her to which one could point and say "That is the typical American Girl." As soon as the world saw Gibson's ideal it bowed down in adoration, saying; "Lo, at last the typical American Girl." Not only did the susceptible American men acknowledge her as their queen, but the girls themselves held her as their own portrait, and strove to live up to the likeness. Thus did nature follow in the footsteps of art, and thus did the Gibson Girl become legion, and the world take her to its heart as the ideal type of American womanhood. . . . Gibson also created a type of man, the square-shouldered, firm-jawed, clean-shaven, well-groomed, wholesome youth—for which he and his friend Richard Harding Davis were the models; and the American young man, less self-conscious than the American Girl, set himself to imitate the type. It was Gibson's pen which sent moustaches out of fashion and made the tailors pad the shoulders of well-cut coats.

The Robert Clays of "Soldiers of Fortune" by Richard Harding Davis were a typical Davis-Gibson couple of that era. For the sake of those unacquainted with them, I may explain that Mrs. Clay had been Hope Langham, the daughter of a wealthy New York business man.

At the time this picture of Hope Langham was made she was a trifle over 18, lovely to look at, interested in animals and outdoor games, simple, unspoiled, enthusiastic, but, according to her older relatives, a good deal of a tomboy. She was a particularly delightful person to her own friends, and the kind of girl that every one naturally liked.

Mr. Langham had mining interests in South America under the direction of a young engineer named Robert Clay. Clay was somewhere in the neighborhood of 30, a well educated, able chap. One winter Mr. Langham decided to make an inspection of the work going on in South America under Clay's guidance and to take his daughter Hope along with him on the trip. During this southern sojourn Clay and Hope fell in love with each other, and after various vicissitudes became engaged and, I suppose, married and lived happily ever after.

The Clays, I imagine, are more or less typical of a great many present-day fathers and mothers whose children are now in the limelight. When they got married, their friends all observed what a fine looking pair they were. They were wealthy and attractive. They did things well and easily. They were interested in the pleasant side of life as well as in dollars and cents, and, presumably, were keen to have their children grow up with all the advantages accruing from the various new facilities that they had missed in their own early days.

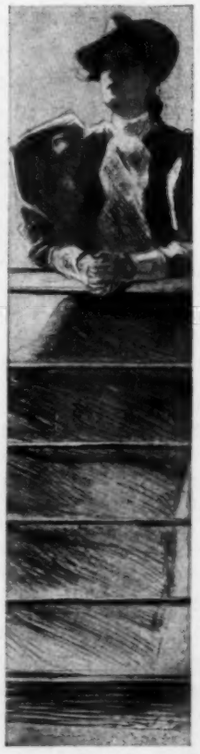
One of the fundamental points at issue just now is how successful such fathers and mothers have been in the end-result of their labors. They must be prepared to take full responsibility for the conduct of the present generation of young people; it is the first to have been brought up under the new methods of living and education that developed after the beginning of the new century.

Boys are far easier to understand than girls and have not been so much influenced by changing styles. They still admire a broad-shouldered, narrow-waisted, athletic, energetic type of man of the Clay type and are contented with their fathers' clothes, games and attitude toward life. One realizes this in many ways. Current advertisements of the well-dressed man, for example, invariably show a slim youth more or less modeled on Davis-Gibson lines, obviously athletic and graceful and with clothes practically unchanged year by year in cut or shape.

One merely has to think of the World War and the gallantry of the innumerable young men who so cheerfully gave their

Typical American Man and Girl of the Year 1900

ROBERT CLAY. *Reproduced by the courtesy of Charles Scribner's Sons, New York, from "Soldiers of Fortune" by Richard Harding Davis. The drawing is by Charles Dana Gibson.*



HOPE LANGHAM, *as pictured by Charles Dana Gibson. Reproduced by courtesy of Charles Scribner's Sons, New York, from "Soldiers of Fortune" by Richard Harding Davis.*

lives to feel that the boys of ten years ago were chipped from the same block as their fathers and brothers. And finally of course we hear almost every day of some unprecedented feat of fortitude or skill performed by this year's crop.

Colonel Lindbergh is a striking example of what the male youth of today can do. He appears to have everything about him that any father would wish for in a son—a frank, intelligent, unassuming way of doing things, a keen sense of humor, good manners, a tall, lean, well built body, a knack of accomplishing all that he tries and, above all, indomitable courage. Boys everywhere respect and admire him. He is a splendid ideal.

Girls are more complex. Speaking generally, there have been evolved from Hope Langham and her friends two more or less distinct kinds of young women. On the one hand is the athletic girl and on the other the flapper.

Women like Miss Eleonora Sears and Miss Helen Wills, to mention two well known examples, have had an important influence in stimulating and encouraging girls to develop well constructed bodies. It is an inspiring sight to see the number of women who, like Miss Sears, believe in exercising regularly outdoors each day—walking, riding, skating, playing basket-ball, hockey, golf or tennis. As one goes about the country in summer, one can easily imagine that the American girl's national uniform is a "Helen Wills" eye-shade, short white dress, white tennis shoes and white stockings.

Certainly, in recent times, no one has been flattered by more sincere imitators than Miss Wills. As a result of the example of women like these, there have grown up a great many splendidly strong and well developed young girls, who take a more or less conscious pride in the fitness of their bodies. They play their games with the unselfish zeal of school boys and apply their brains to any worth while project with the same vigor. They make admirable citizens, for, taking it by and large, good physical and mental equipment go hand in hand.

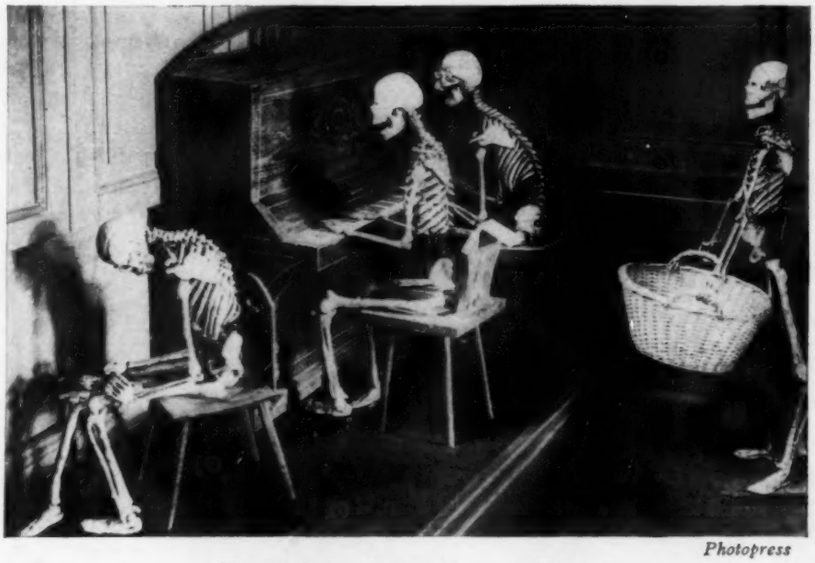
On the other side of the balance is the flapper. It is a difficult matter to trace her origin or to describe her. Met casually, however, she gives the impression of a heady cocktail—one third pure youth with a dash of natural

SPLENDID EXAMPLES OF MODERN YOUTH: *Colonel Charles A. Lindbergh, Helen Wills and Eleanora Sears. Miss Wills and Miss Sears represent the athletic type, as contrasted with the flapper type, of young woman.*

deviltry thrown in, one third the effect of Parisian dressmakers, and one third an aftermath of the war—all thoroughly shaken up together.

On the surface the flapper is hard as nails, painted like a chorus girl and able to converse on occasion with the fluency and picturesqueness of an irate sergeant-major. She smokes whenever she feels like it, and almost always in public. She goes in for strong perfumes. She does conspicuously whatever comes into her head. She is not averse to the odd drink now and again and talks frankly with her companions about Freudian complexes and sex appeal.

She is beautifully turned out from the top of her head to the soles of her feet and is but an indifferent athlete. She always has an eye to the gallery, likes attention and to be thought as bold as she looks. Underneath her veneer, she may be very intelligent, well read, kind hearted, innocent and very charming.



Photopress

The skeleton in various postures.

Thus, apparently, among other factors, there appear to be two fairly definite influences at work on the youth of today. Athletics and interest in sport have inspired a certain proportion to develop healthy bodies and minds, while flapperism gives the current impression of more or less general dissipation.

Which of these influences prevails?

What is the average young man or girl like?

Is the present generation, on the whole, the result of a successful experiment in education and up-bringing on the part of its parents or is it a failure?

One could study and analyze these modern young people in a variety of ways. Being a doctor, it has interested me to observe them from the point of view of their physical development in order to obtain some idea as to how our average young citizen now looks and to try to discover whether there are any obviously harmful tendencies in prevailing fashions and methods of life that can be recognized and perhaps corrected for the good of the generations to come.

One of the most striking characteristics of the modern girl is her weight. She tends deliberately to undernourish herself in order to keep thin. This fact can be readily seen by comparing the weights of a group of boys and girls.

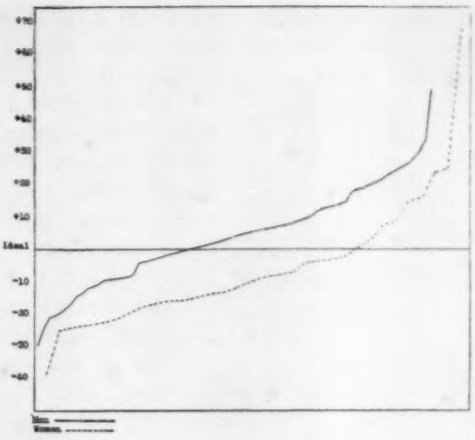
The weight curves plotted in the table shown here were obtained by using as a base-line for each case the standard life insurance age-sex-height-weight figures published by a committee of the Association of Life Insurance Directors and Actuarial Society of America in 1912. It is apparent that there is a considerable difference in the weight fashions of the two sexes. Comparatively few underweight men were encountered and the vast majority were well above rather than below the ideal line.

The girls, on the other hand, were commonly underweight and were frequently many pounds too light, though occasionally a very stout girl was encountered. One gets the impression that a girl's present aim is to keep thin at all costs; failing to attain this end she may become discouraged or conclude that the effort is more bother than it is worth, in which case she may go to the other extreme and placidly eat herself into a condition of abnormal obesity, which is almost as bad as being too thin.

The modern girl wears too light clothing. In weighing a group of girls I discovered that many considered 2 pounds of clothing—including shoes—an almost excessive amount to wear. Many young women put on for ordinary evening dress, I am told, an outfit that weighs about 12 ounces, or rather less than the mere man shivers in on the beach of a fine summer's morning when he goes swimming.

One result of such light clothing is that the modern young woman—at least during any northern winter—is constantly cold. She finds it difficult to keep warm even indoors and is apt to have a subnormal temperature and blood pressure. Rarely in the examinations made by me was a reading of 98.6 degrees obtained, and not infrequently a temperature of 95 or 96 was recorded. The blood pressure also tended to be subnormal. The men, on the other hand, almost invariably had normal temperature and blood pressure readings and did not complain of feeling chilly.

A girl who is chronically undernourished and has a subnormal temperature, readily develops other symptoms. She is constantly below par and thus liable to minor infections in the way of colds or sore throats and may readily incur more serious troubles. Thus in my group it was found that 36 per cent of the women had lost two or more weeks' time from minor illness during the preceding two years while only 16 per cent of the men had been bothered by a similar loss of time as a result of sickness.



A comparison of the weights of a group of normal young men and women.

Even more striking was the number of girls who complained of getting easily tired, a complaint almost unheard of among the men. This, perhaps, is a more serious matter. The modern girl requires pep at all costs. Her popularity and dash depend entirely on this altogether indescribable characteristic. It is not especially to be wondered at, therefore, that the modern, undernourished girl who continually feels cold, who is liable to minor infections and gets easily tired on even very moderate effort, acquires the habit of obtaining pep by artificial means.

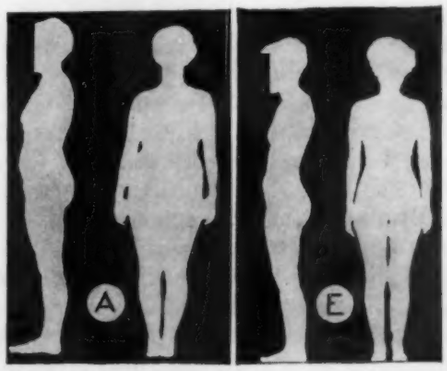
She easily begins to take more tea or coffee than is good for her nervous system and to smoke too many cigarets. The coal tar products, like aspirin, phenacetin or pyramidon, are readily obtainable and are not altogether harmless. If she is unable to sleep, she may come to rely on hypnotics like luminal or veronal. Her doctor may find that her metabolism is subnormal, and he may give her thyroid extract alone or combined with some other glandular preparation. Two cocktails make her feel better than one, and three better than two. The first thing she knows, she is in the center of a vicious circle; she feels tired and "peps up" with drugs of one sort or another. The more tired she feels, the more of such medicines or stimulants she takes, and the more of them she takes the worse does she feel. She is only too likely to end up with "nervous prostration" or something worse.

Boys, on the other hand, may enjoy the sensation of being temporarily exhilarated, but rarely lean on alcohol or anything else to carry them through their ordinary routine of existence.

Both boys and girls tend to stand badly. It is uncertain whether faulty postural habits produce any definite symptoms, but all doctors are familiar with the thin type of middle-aged woman who has a multitude of complaints causing more or less complete disability, but who is found to have on examination nothing more definite than ptosis, or a general downward displacement of the abdominal viscera. The current fashionable method of posture for girls is admirably designed to induce such ptosis.

A girl should stand as does the figure labeled *A*, on a firm base, with shoulders well back, chest out and stomach drawn in. The figure labeled *E* illustrates the way in which so many stand today. There is a slight forward bend of the shoulders often exaggerated by a tight breast binder, which not only makes expansion of the upper chest almost impossible but also tends to produce atrophy of the breast tissue. The lower abdominal muscles are relaxed, so that the stomach and intestines are pushed forward and downward, often into the pelvis. Coincidentally the uterus may become displaced, and there may develop a great deal of pain and discomfort at the time of each menstrual period and later, perhaps, sterility.

In Germany they are studying the problems of posture in the graphic and novel way illustrated. The skeleton on the left side of the piano demonstrates a good sitting posture, while the one at the soprano end is slouched over in a poor posture. The skeleton on the right, carrying the basket, is of especial interest as showing with but slight exaggeration the manner in which so many girls now carry themselves, without any extra load. The upper spine and shoulders are bent forward slightly, the pelvis has an awkward forward thrust, and, in order to compensate for this, the legs are pointed a little backward instead of being straight up and down. It is interesting to compare this skeleton with the silhouette *E*.



Example of good and bad postural habits in women.

The obviously outstanding medical faults of the modern girl, therefore, are that she is too thin, wears too light clothing in cold weather and stands poorly. All these faults are potentially harmful and should be taken seriously.

There is nothing so striking to comment on in regard to

the boys. They appear well formed, upstanding youths, quite able physically to meet life as it comes.

AN AVERAGE YOUNG WOMAN OF TODAY

Age: 22 years
Height: 5 feet 4 inches
Weight: 126 pounds
Temperature: 98.2 degrees
Pulse Rate: 88
Blood Pressure: 120

Thirty-six per cent have had two or more weeks' illness in the last two years.

Thirty-six per cent complain of getting easily tired.

It gives an unfair picture of modern girls, as a whole, to overstress the faults of a few. The average of the group from which these impressions were obtained was certainly a good-looking person, exhibiting practically none of the bad tendencies mentioned.

She was active and graceful in the handling of her body, had good posture, was fairly tall, had well formed shoulders and a small waist, was perhaps a little thin, but was well muscled and sturdy. On the whole, she appeared to be perfectly healthy both in mind and body and was much more of the athletic than the flapper type. I believe her to be fairly typical of the average girl throughout the country and a very fine product, while the flapper, though a comparatively rare bird, is like a cinder in the eye given undue importance on account of her conspicuousness.

If one were to make a single general criticism of the modern young person it would be that the fashion for girls to remain too thin is unwise, as is, perhaps, the tendency for boys to overexercise after they leave college and settle down to hard work.

One girl of my acquaintance is a good object lesson in regard to certain of the ill effects of the prevailing fashion in malnutrition. She was never particularly strong, though a few years ago she weighed 110 pounds and felt well. She became imbued with the idea that she was too fat and set about losing weight. She became thinner and thinner and finally got down to a weight of 60 pounds. Then she found that she had developed into a chronic invalid and was good for nothing. By dint of a great deal of medical care she finally regained 20 pounds of her loss.

Loss in weight is one of the outstanding signs of many diseases. It almost always means something abnormal. Nowadays when chronic malnutrition is so fashionable among young women the possible significance of weight loss may be overlooked.

Those of us who are sufficiently old to know Robert Clay and his male friends well enough to call them by their first names are now hearing, with surprising frequency, of the sudden deaths of a certain number at the age of 50 or thereabouts. Men of the Clay type usually lead fairly hard lives. Often they combine, for years, overeating and drinking with hard mental and physical exertion, living on their nerves and doing everything at top speed. They keep themselves more or less trained down by playing squash, racquets, polo or tennis two or three times a week. They look in good condition and appear to feel well, but they die suddenly while they are still in the prime of life. They are apt to have sudden heart failure from an unpredicted attack of angina pectoris.

Little is definitely known about the cause of angina pectoris. Most persons who die of it, however, prove to have had a shutting off of the blood supply to the heart muscle as a result of hardening, or sclerosis, of one of the arteries nourishing a vital part of it. The cause of such arterial sclerosis is uncertain though the possibility arises that it may be due, in part at least, to the rapid pace of modern living.

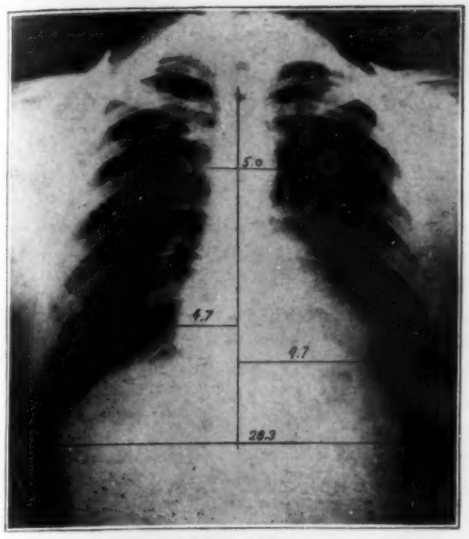
AN AVERAGE YOUNG MAN OF TODAY

Age: 22 years
Height: 5 feet 10 inches
Weight: 159 pounds
Temperature: 98.7 degrees
Pulse Rate: 82
Blood Pressure: 129

Sixteen per cent have had two or more weeks' illness in the last two years.

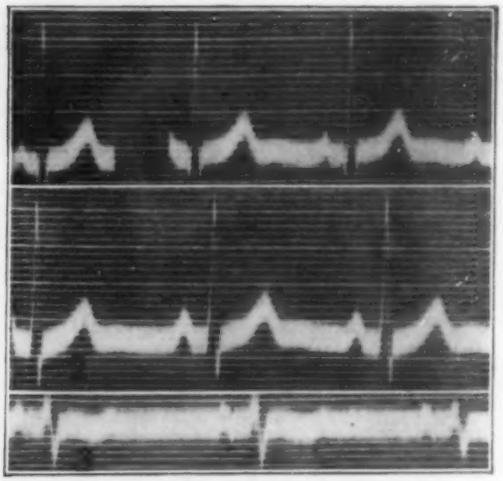
Two per cent complain of getting easily tired.

The medical observations summarized on the opposite page suggest that too violent exercise and too strenuous a life may be injudicious for young men and may be paving stones for the development of premature arterial disease.

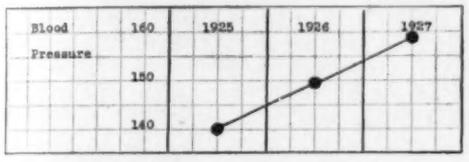


A 7 foot film of the heart; transverse diameter of chest, 28.3 cm.; greatest width of heart, 14.4 cm.

Age: 25 years
Height: 5′ 10″
Weight: 162
Ideal Weight: 157



Electrocardiographic tracing after exercise.



Blood pressure readings for last three years.

URINE

Hours	Before Exercise	After Exercise
Sp. gravity.....	1.028	1.023
Albumin	0	L.T.
Sugar	0	0
Hyaline casts.....		Few
Granular casts.....		Many
Blood		0
Leukocytes		0
Negative	Yes	No

An example of the possibly bad effect of too strenuous living on a young man's heart and blood pressure.

The case in point is that of a particularly hard-working and ambitious fellow of 25, who goes at everything with all his soul and who keeps himself in good physical trim by violent exercise. He has carried out a singularly hectic program during the last three years.

He looks and feels the picture of health. His heart, however, already is slightly enlarged as demonstrated by x-ray measurements, for twice the width of the heart as measured in this way should not exceed the transverse diameter of the chest. His blood pressure has shown an upward tendency each year for the last three years. His urine after exercise, as so often occurs, contains albumin and casts like that of a person suffering from Bright's disease. The electrocardiographic tracing of the heart action alone remains normal.

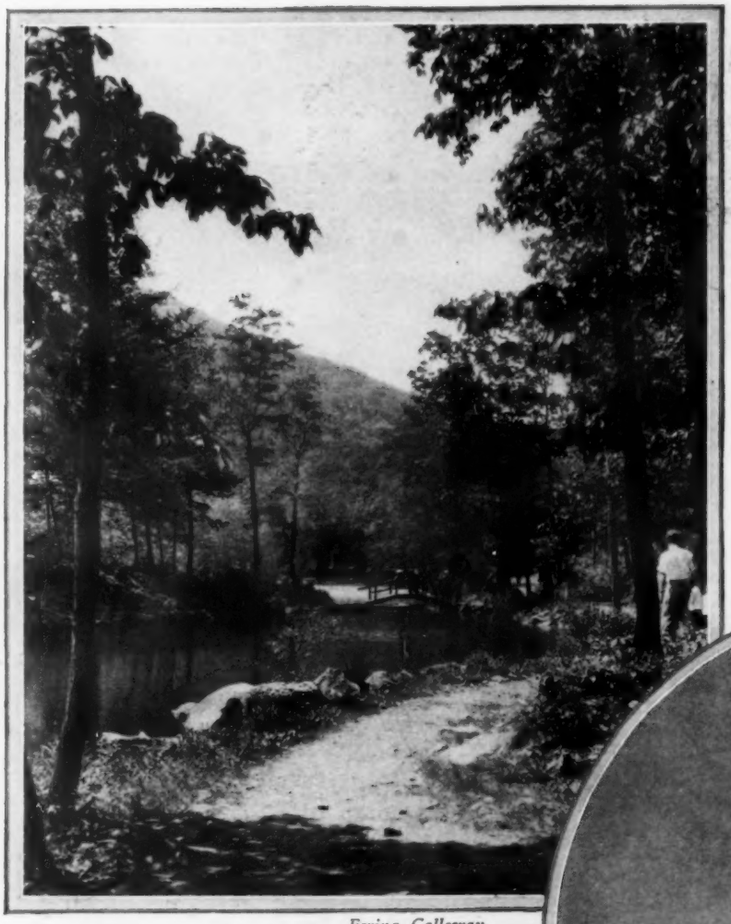
By way of conclusion, I can only state that as a result of studying a group of them, I have implicit confidence in these modern young people. They have few faults and many splendid attributes. They are most emphatically all right.

The boys ordinarily are following along the lines laid down for them by their fathers and have excellent physical and mental development. They tend perhaps to lead too strenuous an existence for longevity. It is a question whether so much violent and spasmodic exercise as many are taking for recreation may not prove to have a detrimental influence on the heart and blood vessels by throwing on them an unnecessary load which will be harmful in the long run. Well controlled medical studies on the matter will soon answer this question.

The girls are more influenced by the fickleness of changing fashions. At the moment, unfortunately, many of them keep too thin, clothe themselves too lightly and hold themselves too poorly for most perfect health. These weaknesses are probably due to passing fashions that will correct themselves within a few years' time. In other respects the girls are as admirable specimens as the boys.

On the whole, the youth of today are a fine crowd of young men and women. As they have their innings, they will carry on the work of the country in the best possible way. No doubt they will, in turn, presently come to be more or less bewildered by the conduct of some of their own young people.

Vacation Trails



Ewing Galloway

Bear Mountain Park, up the Hudson River from New York City.

Yachting in Pacific waters.

Wide World

Mountains and lake at Crawford Notch, White Mountains, New Hampshire.

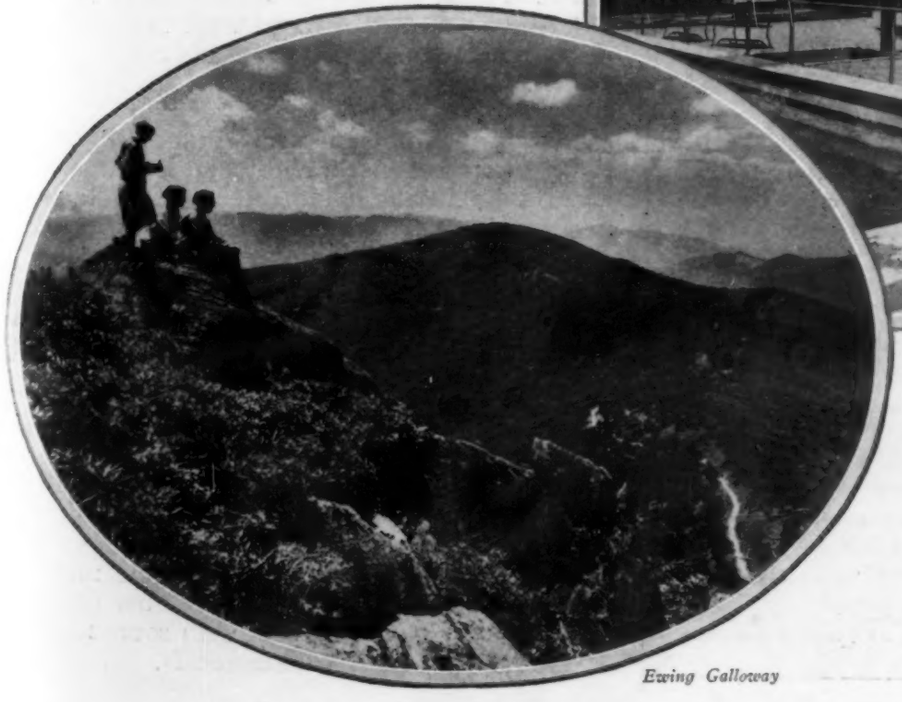
Michael Greenan

Boy Scouts prepare a sour dough concoction for baking in a Mexican oven.

Wide World

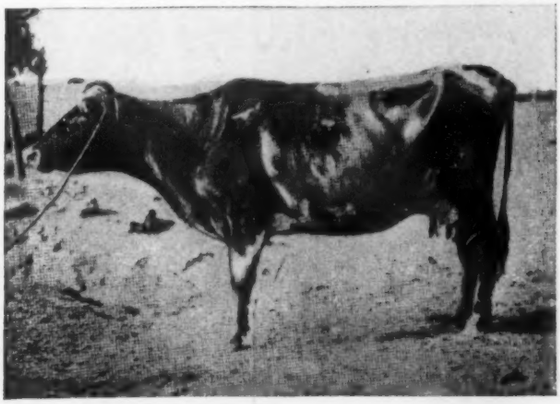
View of Yosemite Falls from bathing pool at Yosemite Lodge.

Ewing Galloway



Mt. Mitchell in North Carolina is the highest point east of the Rockies, being 6,711 feet high.

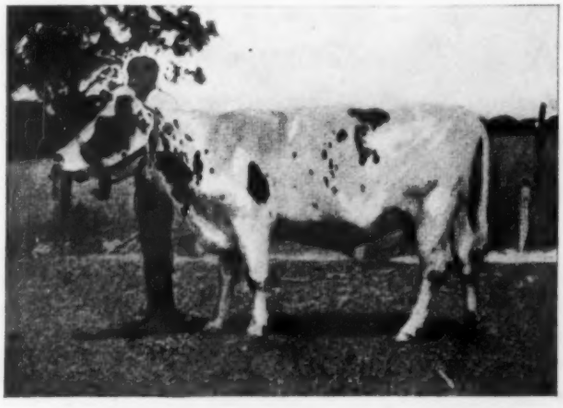
Ewing Galloway



An old and visibly tuberculous cow.

Parents Should Know that—

1. *Milk for infants should be obtained from cows tested for tuberculous infections.*
2. *Boiling of milk is a safe method of preventing transmission of tuberculosis by way of milk.*
3. *A tuberculous mother should not nurse her baby.*
4. *Children should not come into close contact with any adult member of the family that suffers from tuberculosis, or that has a chronic cough.*
5. *Sunshine and fresh air are of paramount value in the prevention of tuberculosis in childhood.*
6. *A child who has come in contact with a tuberculous patient should be examined frequently and should be given special care.*
7. *No child should be sent to a sanatorium unless conditions make it impossible for him to remain at home.*



An exceptionally dangerous cow. It looks healthy but the tuberculin test shows that it is tuberculous.

Photos from Feldman's Antenatal and Postnatal Child Hygiene, John Bale, Sons & Danielsson.

Preventing

By A. Levinson

PREVENTIVE measures are being employed successfully in combating many infectious diseases of childhood. Special methods of immunization have been found for smallpox, diphtheria and scarlet fever. Other diseases, for which no specific form of immunization has been discovered, have been robbed of their terrors or have been rendered preventable by the exercise of proper hygienic measures. Among the diseases that are preventable is tuberculosis of childhood.

Tuberculosis attacks children much more frequently than is commonly supposed. Many infants die from the fatal form of the disease known as miliary tuberculosis; other children who become infected survive, but they are often left with some stigma of the disease, such as enlarged glands of the neck or chest. Still others suffer from bone and joint disease. In order to eradicate tuberculosis it does not suffice to treat the disease after it has developed, but it is a great deal more vital to prevent its development.

Must First Try to Prevent Infection

The most important problem in the prevention of tuberculosis in childhood is to keep the child from becoming infected by the tubercle bacillus, the exciting cause of tuberculosis. In order to do this it is necessary to know how the organism reaches the child's body.

One of the means by which tuberculosis is transmitted to the child is the consumption of milk from tuberculous cows. This mode of infection gives rise to tuberculosis of the intestines and to infection of the bones and joints.

Another known method of transmission of tuberculosis is through direct contact with persons suffering from the disease. Once in a while the physician finds a child that has contracted tuberculosis from an infected nurse or maid, but by far the greatest number of infections occur through contact with some member of the family who has tuberculosis.

Tuberculosis in Children

Sun treatment for tuberculosis is well demonstrated at Professor Rollier's clinic at Leysin, Switzerland, views of which are shown on this page and the page following.

Since the principal sources of infection are known, it is possible to start on the campaign of prevention of tuberculosis from two angles: (1) the supervision of milk supply; (2) the prevention of contact with tuberculous persons.

Several methods are employed to prevent tuberculous infection through milk:

The cows are examined for tuberculosis. The attendants are also examined frequently for evidence of the disease. Utmost cleanliness is enforced in the upkeep of the stalls in which the cows are housed, and also in the use of all the utensils employed, so that the milk will remain uncontaminated.

Most health departments require the pasteurization of milk to destroy the germ causing tuberculosis.

As an additional precaution, the milk given to a baby should be boiled. The vitamins in the milk that may be destroyed through boiling can be supplied by adding orange, tomato or carrot juice to the baby's diet. The boiling of milk is of special importance during the summer, particularly if the baby is in a place in which the milk supply is not under control.

Keep Child Away from Tuberculous Adults

To guard the child against infection from a tuberculous person, it is of primary importance to see that the child is not permitted to come into contact with any adult member of the family who suffers from the disease, even if this means separation from the home.

If one of the parents or one of the relatives who lives in the same house with the child has a chronic cough, he should be examined by the family physician. On general principles children should be kept away from all persons who cough. Through promiscuous kissing of children by adults, the disease may be innocently transmitted to a child.

No mother suffering from tuberculosis should be permitted to nurse her baby. In former years, it was customary to wean the baby only if the mother had an advanced case of tuberculosis. It was found, however, that most mothers who suffer from the disease sooner or later infect their infants, most likely through coughing or sneezing.

Maintain High Standard of Health

The child's general health should be maintained at as high a standard as possible in order to fortify him with the best weapon against tuberculosis. Plenty of fresh air, sunshine and cod liver oil will do a great deal to keep the child in good health.

Children should preferably sleep in a room by themselves. If the parents cannot afford to give them a separate room, at least sufficient air space should be allowed to the children. One of the main reasons why negro children suffer so much from tuberculosis is that they live in congested districts and have poor sleeping accommodations, several members of a family sleeping in one room.

A special plea should be made for sunshine. The sun has been shining since the beginning of the world, yet there are people, in this advanced age, who do not appreciate the value of the sun

and the sun's rays. Civilization, of course, is partly responsible for this state of affairs. In order to protect himself against the weather, and yet enable him to see the light of day, man invented glass windows. It is only recently that we have begun to realize that the ordinary glass transmits light but shuts off certain rays, known as ultraviolet rays. Now that we are waking up to the fact, we are beginning to utilize the actual rays of the sun, including the ultraviolet rays.

The best and cheapest way to prevent tuberculosis is to let the child enjoy to the full extent the sun's rays. This is a most beneficial and inexpensive luxury within the reach of all. Sunshine is used not only for the prevention but also for the treatment of tuberculosis. Professor Rollier of Switzerland, who makes use of heliotherapy or sun-ray treatment for tuberculosis in a large measure, reports gratifying results in thousands of children.

Children who cough should be given special attention. Unfortunately there are still many mothers who dismiss the cough of a child by saying that it is a mere bronchial cough or just an ordinary bronchitis. Every swelling of the neck should be investigated by a physician to make sure it is not tuberculous in nature.

If the child has already come into contact with an adult member of the family who is tuberculous, measures should immediately be taken to arrest the development of the infection he may have acquired. If he suffers from the active form of the disease, he should be sent to a hospital. If he manifests symptoms of chronic tuberculosis, he may be treated at home or at a sanatorium depending on the advice of the physician. If he manifests no symptoms at all, the home conditions should be considered in the management of the case.

Home Atmosphere Better than Sanatorium

If there is plenty of sunshine and air in the house, if the child gets good nourishing food and has enough sleeping space, and, above all, if the tuberculous member of the family has been removed from the house, the child may be left at home. For psychologic reasons it is best for the child to stay at home. Children who are sent to sanatoriums or preventoriums acquire a certain mental attitude that makes invalids out of them. Children who have been in a sanatorium for five or six months speak of tuberculosis as "T.B.," of consumption as "con" and of the sanatorium as "san." Sputum, hemorrhages and cavities form a part of their daily conversation. The aim should be to keep close watch on the child's physical condition without letting him know it, without making him conscious of his condition.

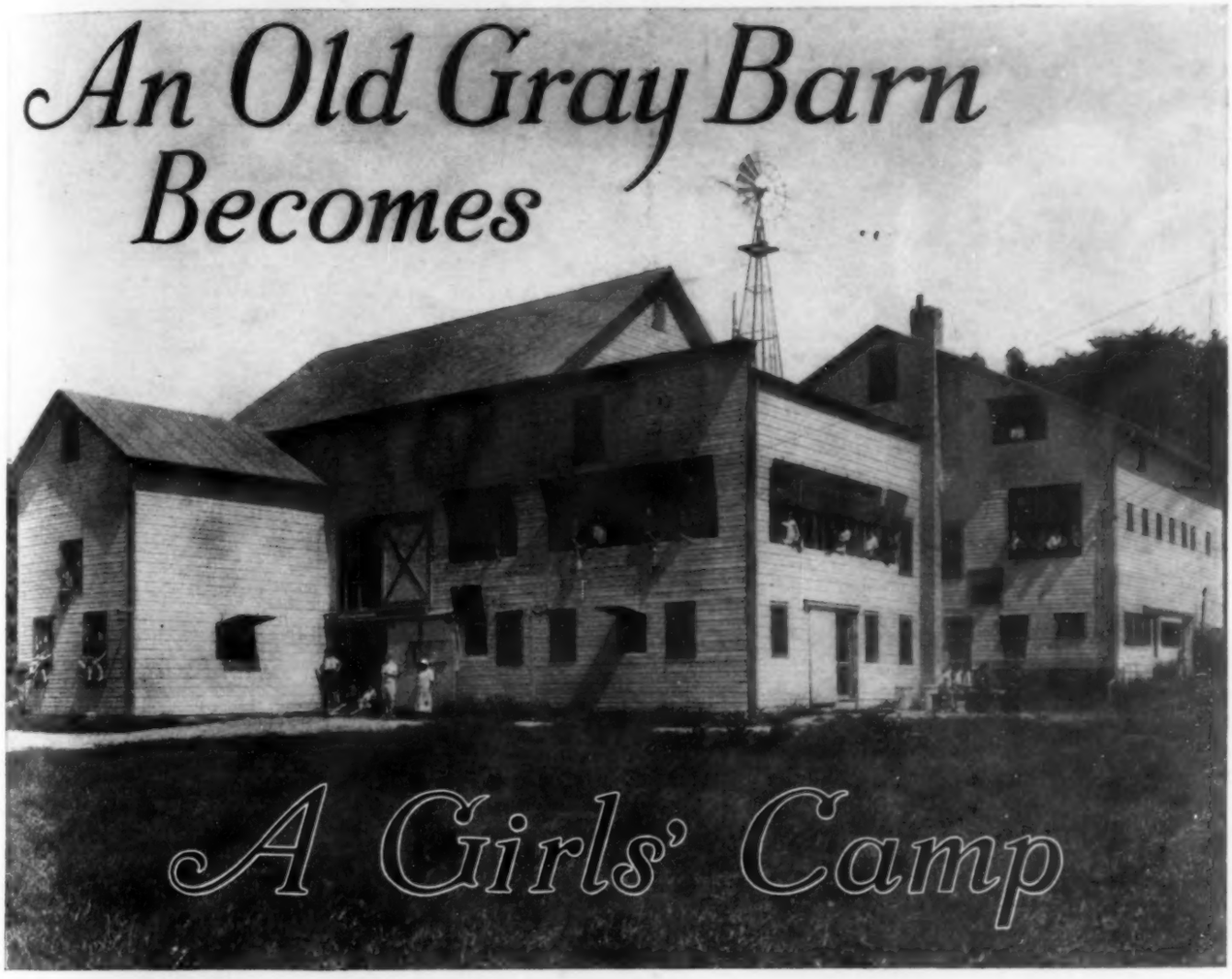
Even if the child gives a positive tuberculin test, as long as he does not suffer from active tuberculosis, he may and should go to school. No harm results either to the child himself or to other children in permitting him to attend school; for at best his case is "closed" and thus does not endanger other children.

Children Should Be Followed Up

If home conditions are poor; if there is a lack of sunshine or lack of cleanliness on the part of the parents; if the child is unable to get the nourishment he needs; if he has poor sleeping accommodations and is obliged to share a bed with some one; or, what is most vital, if there is an open case in the family which for some reason or other cannot be removed from the house, the child should be sent to a preventorium. The results of preventorium treatment in this type of case are usually gratifying. It is unfortunate, however, that after a marked improvement which makes it possible for the child to be discharged, a return to unsatisfactory home conditions may bring on a recurrence of the trouble.

All children who have come in contact with tuberculous persons should be followed up for a number of years. They should be weighed and measured regularly, the teeth and tonsils should be looked after and x-ray examinations made at stated intervals. Special instructions should be given as to food and sleeping accommodations.

An Old Gray Barn Becomes A Girls' Camp



By W. H. Matthews

OF THE old gray barn and not of the "old gray mare" I write. It was on a week end in the month of March that we drove out from New York City to a farm in Dutchess County to look over some possible sites for a girls' camp.

In our minds were tentative plans for an inexpensively built group of cabins, similar to several camps we had built in previous years for boys. We looked over several hill tops, finally deciding on one that through the trees commanded a view of the Hudson River with the Catskills beyond. We had driven in a few stakes, were using a level to determine grades, when one of the group, looking across to another rising piece of ground on which stood a big gray barn built years before by a former owner of the property, said, "Why not turn that barn into a camp?" Thus did sudden suggestion from one woman upset the plans of three men!

Dropping axes and level, with no thought of not returning to continue our work, we consented to walk over to look at the barn. Entering by the basement, we picked our way over the dirt floor through the alley that the milkers had trod years before as they went from stall to stall; thirty of these stalls were still standing. Then up the old wall ladder we climbed to the hay floor, empty except for a pile of straw, an ancient ox yoke and the ruins of a two-wheeled dump cart. The granary in one corner smelt strongly of mice and grain, and a dozen or more gnawed holes told of possession by the former. From a door on this floor we looked down to the bottom of a square built silo which had evidently been attached to the barn as an afterthought. There was nothing there save 3 feet of water and 20 feet of chill and dampness. Then we went over into the wagon rooms and horse stalls.

There it was, I believe, that the doubters of the plan began to weaken. Six beds here, ten there, these two box stalls for the camp director and counselors, this harness room for a

A modern hay-rack ride at Greybarns, a New York girls' camp.

linen closet—we were getting warmer every minute.

Still there was the upper floor to explore, where Farmer Brown, in the days gone by, had pitchforked tight under the roof the tons of hay for the long winter months. Here we found nothing save dust, cobwebs and a rusted water-tank. As we opened the big door over which still hung the heavy rings of the hay fork, we looked across the Hudson to the Catskills beyond. Below us now were the trees that had partly obstructed our view on the hill top just left.

Fine View Was Deciding Factor

Perhaps it was this view that tipped the scales in favor of converting the gray barn into the proposed girls' camp. At any rate, the remaining hours of the afternoon were spent in making drawings for the conversion and on the next day we engaged a local carpenter to start the work. That we might give full rein to fancy on our week end visits, we decided to have the work done by day labor rather than by contract. Some approximate estimates of the work and material involved assured us that the proposed barn conversion would cost less than the construction of the camp first planned, with a building more desirable, more comfortable and equally workable as the final result.

What were the changes made? First, whenever possible, four widths of the siding on all sides of the barn, basement and two floors were taken off, this giving at once a sweep of light and air to every corner in the building. The siding was then sawed and nailed into shutter widths and hinged back on the barn. A small pulley let into the barn siding over each shutter with rope running through to the inside of the barn, made it possible to raise and fasten each shutter at any desired angle. All these openings were screened inside.

It was decided to leave the outside wagon width doors as they were, building inside of them a light framework for screening the full opening. On this frame, single screen doors were hung so that the big doors could remain wide open or be quickly closed, in case of heavy winds or storms.

Rustic Porch at Haymow Door

From the hay doorway of the upper floor, this being the only floor not having a ground level entrance, a 6 by 8 foot rustic porch was built with open stairways to the ground. This, facing directly west, proved a most popular resting place at evening time as well as fulfilling its first purpose, that of providing easy and quick exit in case of fire for the fifteen girls who later slept on this floor. With the exception of some slight repairs to the roofs, this completed the outside changes. Within, the work was much more extensive.

We began in the basement, the former domicile of the cows. With the exception of six box stalls that filled a small angle running off from the main barn, all stalls were torn out. With a cement floor laid, a big stone fireplace built, a

partition thrown across one end to make the kitchen, a wide inside stairway leading to the recreation room above, the whole room painted white with the exception of the brown raftered ceiling—the mess hall, with seating capacity of 100, was ready for use. The six box stalls in the angle became shower and wash room, laundry, lavatories, and coal and wood bins. In this way all plumbing was brought into one corner of the building. The silo, the bottom of which reached to this basement level, was properly drained, a floor and an 8 foot ceiling built and here we had an excellent room for the cook, always an important item in a camp.

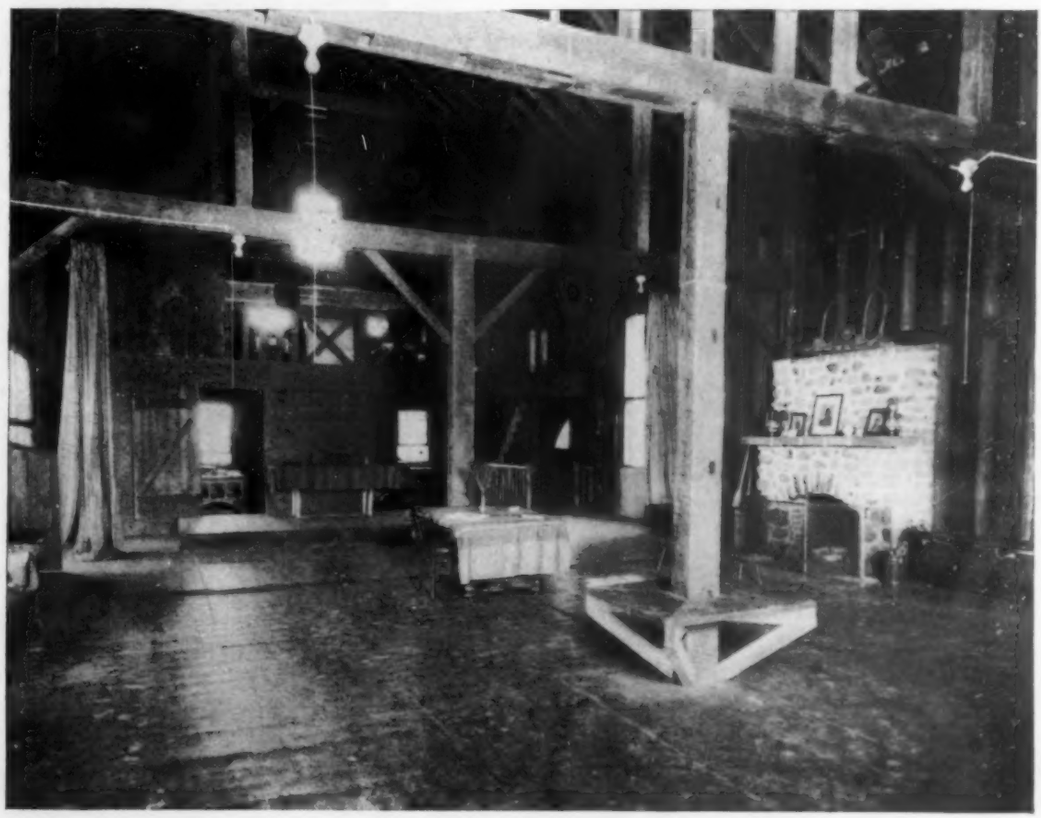
Silo Becomes Dormitory

The hay floor, we decided, should be the recreation room. All the hay mows on the main floor were removed with their supports so that the room would be clear from floor to roof. To replace the smaller roof and wall supports that were taken out, we added one heavy timber support across and in the center of the floor. A small straw mow at one end of the room was converted into a balcony bedroom for six girls. The silo, opening off this room, became at once a dormitory for eight girls, the ceiling of the cook's room, already mentioned, becoming the floor for the silo second story. The chimney from the basement fireplace was carried through the recreation room and by adding a second flue from this floor up, another large open fireplace became available. The granary, under the balcony bedroom, became the director's office, with shelving and cupboards built in for books and games.

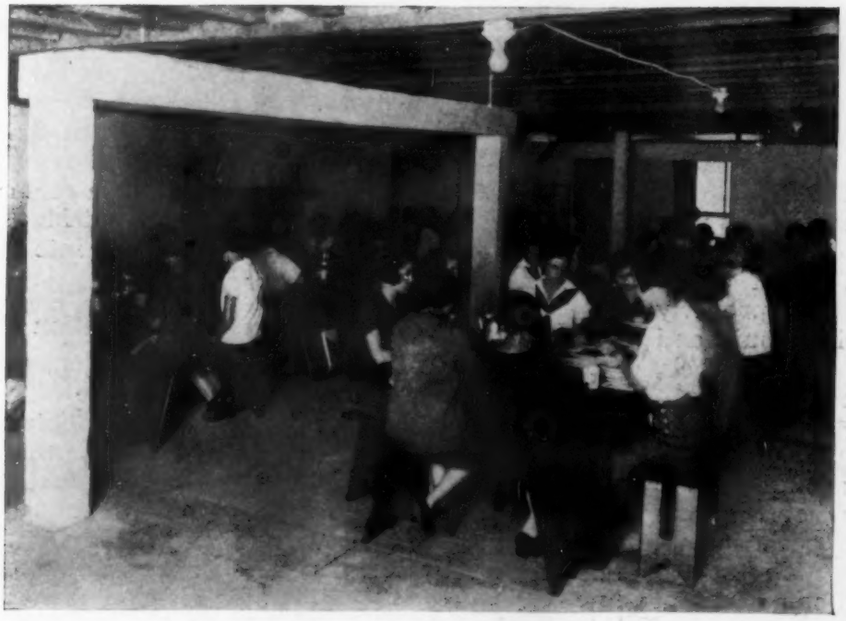
We now had left for dormitory purposes the wagon room, the horse stalls and the second floor hay storage space. The latter called for little work other than the tearing out of the old water storage tank, the building of a room for one counselor, and some floor patching. The wagon room was easily transformed into a fourteen bed dormitory.

Stained and Fumigated in One Operation

The horse stalls, which at first sight looked almost ready for immediate use as sleeping rooms, proved quite the contrary. Attempted patching here and there was like the pouring of new wine into very old bottles and we finally decided to tear out the floors entirely, replacing them with new. With the carpenter work finished, there came the question as to how the building could be thoroughly cleaned inside. We purchased a barrel of light brown stain, added to it a strong fumigant and, using a power spraying machine borrowed from a neighboring apple grower, we sprayed the entire inside of the building. This accomplished two things—sent spiders, wasps, flies and miscellaneous bugs scurrying out of the windows and also brought all inside wood, new and old, to practically the same shade. The water supply was brought from a nearby artesian well, already on the property, and the sewage disposal was cared for by the burying of a septic tank on a hillside 50 yards away.



One end of the recreation room, showing the bedroom balcony, which was once a straw mow, and the granary below, which was converted into an office. Just to the left of the stage curtain is the entrance to the silo dormitory.



The camp dining room was once a cow stable.

The barn furnishings were of the simplest kind. In the dormitories were a single iron cot, pad and pillow, with sheets and two blankets for each girl and a home-made covered box between cots for clothing. A narrow shelf 2 feet above the beds gave place for toilet articles. Table and benches, again home made, were practically the only furniture used in the mess hall and recreation room.

The work of conversion started during the last week of March was completed on June 15 and in the last week of the same month a group of fifty-five girls took possession of our converted Greybarns. The entire cost of the work, with furnishings, including plumbing and wiring for electricity, was $5,600, this being $1,200 less than we had expected to spend in the building of the first proposed camp.

A word might now be in place as to the purpose of this camp: to give to two groups of fifty-five girls each, between the ages of 13 and 16, an opportunity to spend five weeks in the country. The guests invited were selected by the nursing bureau of the New York Association for Improving the Condition of the Poor.

The time of stay, five weeks, was a radical departure from the usual procedure followed at such camps—a change of group every second week.

A fine companionship between counselors and girls ran through the camp life. In my Greybarns folder are many letters from girls who romped and laughed to their hearts' content during those five weeks of healthful, joyous living. I end with one—

My dear Miss ———

I want to tell you how much I appreciate what you have done for me by giving me those five weeks of camp life at Greybarns. I never dreamed that such a short time could hold so much real enjoyment and pleasure. I learned all the different strokes in swimming and how to dive. I may have been a little wild at times, but the talks the counselors had with us about the campfires did me lots of good. I suppose you already know from the card sent to you from Greybarns that I gained 7 pounds in spite of playing on the ball team every day, swimming and dancing. I guess the good meals and the long sleeping hours did that. I thank you once more, for if it wasn't for you I would never have known such happiness as I had at Greybarns.

Sincerely yours,

.....

So let us have more places like Greybarns giving a chance of happiness, health and wisdom to the growing girls of our cities.

From wagon room to dormitory. The door leads downstairs to the washrooms.

Water-Borne Diseases and THE LAW

By James E. Foster

THE Supreme Court of the State of Washington, Oct. 13, 1925, upheld a verdict for $60,000 previously awarded by a lower court to Gertrude Mary Roscoe against the city of Everett. Mrs. Roscoe sued the city for damages after her husband had died from typhoid, which he contracted by drinking polluted water that had been distributed through the municipal waterworks system.

This decision is cited for two reasons. It shows first of all that a city is legally responsible for the quality of the water it furnishes its citizens and is held liable for any illness that may result from the supplying of polluted water. Furthermore, the case in point is sufficiently typical of other decisions to be a fair example of our courts' attitude on this matter.

What the Courts Have Upheld

In general the courts have upheld the following propositions:

A city is liable for any disease that may be contracted from impurities in the water it distributes. It must therefore keep this water free from pollution.

It cannot shift this responsibility.

It cannot legally dispose of untreated sewage by dumping it into a natural waterway.

If it does so, it is liable for any illness caused its citizens as a result of the polluted condition of the waterway.

The courts base these contentions on the fact that when a city distributes drinking water or disposes of sewage, it enters the field of private business, and as a consequence must be liable for any injuries its activities may cause. In this connection Judge Elliott of the Minnesota Supreme Court said: "When the municipality enters the field of private business, it does not exercise governmental powers. Its purpose is not to govern the inhabitants, but to make for them and itself private benefit. . . . When a municipality enters into a private enterprise for profit, it should have the same rights and be subject to the same liabilities as private corporations or individuals."

The theory that the city is to be treated as a corporation when it sells water leads to the question: "How would a private company be treated under similar conditions?" In recent years, the majority of the water supply systems have been under municipal operation; however, there have been (and there still are) cities that secure their drinking water from private firms.

City Treated as Private Water Company

As private water companies were more numerous in the past, cases against them are less common today than formerly. For this reason, it may be permissible to go back a few years to cite a court's attitude on a private concern's responsibility for disease caused by polluted water.

Charles K. Archer

A city is legally responsible for the quality of water it furnishes its citizens and is held liable for any illness that may result from the supplying of polluted water.

In 1898, the Wisconsin Supreme Court upheld a verdict brought against the Ashland Water Company. In its opinion the court said that if the company knew or should have known that the water it was distributing was dangerous for domestic use, it was obligated to notify its customers of the condition of this water, and that a failure to do so was a fraud in the eyes of the law.

From this it can be seen that an independent firm is legally responsible for the quality of the water it sells. Since a municipality is to be treated as a private corporation when it supplies water to its citizens, it follows logically that the city should be liable for any injuries it causes its citizens by supplying them with polluted water.

A Minnesota Decision

This principle of municipal responsibility was the subject of an important decision handed down by the Minnesota Supreme Court in 1910. The facts of the case were: Louis Eugene Keever and F. R. Flanagan died from drinking polluted water supplied by the city of Mankato. An investigation showed that sewage was allowed to enter the waterworks system. The widows of these men sued the city and were awarded damages. The case was brought to the Supreme Court, which upheld the judgment of the lower court.

Fear of Liability Stimulates Care

The decision said in part: "It is obvious that a sound public policy holds a city to a high degree of faithfulness in providing an adequate supply of pure water. Nor does it appear why the citizens should be deprived of the stimulating effects of the fear of liability on the energy and care of its officials; nor why a city should be exempt from liability while a private corporation under the same circumstances should be held responsible for its conduct and made to contribute to the innocent persons it may have damaged."

From this decision, one may conclude that when a city supplies its people with water, it

must keep this water pure. The city becomes, as far as responsibility is concerned, a private corporation when it operates a waterworks system, and as a consequence must make financial reparation for any injuries it causes.

In delivering the opinion in this case, Judge Jaggard made the following statement: "Public policy requires the conservation of human life, the preservation of public health and the establishment of public sanitation on a firm and certain basis in the law."

City Cannot Shift Responsibility

The fact that a city cannot shift the responsibility for sickness caused by polluted water was upheld when Mrs. Roscoe sued the city of Everett, Wash. The pollution that was responsible for her husband's death was caused by a by-pass connecting with a local mill. The city knew of this condition and secured a promise from the mill company to remove the injurious by-pass. This promise on the part of the company did not relieve the city of its natural responsibility, and as a consequence, the Supreme Court found the verdict against the city of Everett a just one.

The right of a city to dispose of its sewage has been limited by the decisions of several state supreme courts. The substance of these decisions is that no city may pollute a natural waterway, and that if it does, it is liable for any ill effects of its action.

The Supreme Court of New Hampshire sustained a verdict against the city of Dover in which the evidence showed that the city had dumped its sewage into a natural stream with the result that a nearby resident contracted a water-borne disease and died. In its opinion the court stated that a city is liable for negligence in the construction and maintenance of its sewers. In other words, if a city maintains sewers, it must build and operate them in such a way that they will not endanger public health.

Recent decisions of the Supreme Court of Illinois have been even more specific. In one case the court said that if a city builds a sewer that empties into a creek outside the city limits, it must see that the sewage will flow off without endangering the health of that locality.

Protection for Those Outside City Limits

In this decision, it is probable that the reference to the city limits does not restrict the application of the principle of law which guided the court. The case was one in which water had been polluted outside the limits of a city, and as a consequence, the decision was given to apply directly to the problem on hand. The court in fact recognized the broader application of this principle, for in giving its opinion, it said: "The city has no right to empty the contents of one of its sewers at a point inside or outside of the city, when it may endanger the health or life of a citizen, and escape liability."

In another case, the Illinois Supreme Court declared that a municipal corporation cannot empty its sewage into a stream of water when the water will be polluted as a result.

The first of these decisions of the Illinois court places definite responsibility on the city that dumps its raw sewage into a natural waterway by assuring the injured person of his right to redress. In substance, it says to the cities: "If you dump raw sewage into natural waterways, you are endangering the health of those who drink this water. If any one is injured as a result of your action, he can collect damages from you in our courts."

Stream Pollution Forbidden

Both of these decisions tacitly recognize the conditions under which a municipal sanitary district operates. Neither, it will be noted, forbids the city to dump its sewage into a stream. Each, however, prohibits stream pollution.

A city may for practical purposes do one of two things with its sewage. It may collect it and carry it directly to adjoining waterways or it may first treat it so that the water is harmless before it reaches the streams. Under modern conditions, the sewage must be sent to our waterways. The only question regarding its disposal is: Shall it be deposited in our streams in its raw state or shall it first be transformed into harmless water? The Supreme Court of Illinois has recognized present day necessity; instead of prohibiting cities from dumping their sewage into natural waterways, it has told them that if they pollute streams and rivers, they must pay for their carelessness.

Public Sanitation Must Be Established

The tendency of state courts is to hold cities responsible for the quality of the drinking water they furnish and for the disposition of the sewage they collect. They recognize that public health work forms an important part of a municipal government's activities, and that the people are entitled to proper protection against the dangers to which an indifferent or a careless city administration might expose them. In spirit they give practical recognition to the soundness of Judge Jaggard's opinion: "Public policy requires the conservation of human life, the preservation of public health, and the establishment of public sanitation on a firm and certain basis in the law."

AUTHOR'S NOTE: The following cases may be consulted by any one wishing to secure the details of the principal cases on legal responsibility for water-borne diseases that have been brought before our supreme courts: 239 Pacific 831; 97 Minn. 373; 101 Wis. 258; 113 Minn. 55; 73 N. H. 209; 145 Ill. 23; 158 Ill. 21; 87 N.J.L. 106; 154 N.W. 640.

Do You Know Your

By W. B. Mack

IF A poll were taken of the restaurants in any large city, without doubt the vegetable dinner would not be even a competitor of beef stew or Yankee pot roast in the contest for popular favor.

If voluntary and condemned dieters were ruled out, the supporters of the vegetable dinner would be few and far between. Why? Probably because it is a prize package with no surprises. The hurried diner can bet ten to one that if there are five vegetables on the platter, he can guess at least three of them, every time. Probably two or three of the items would fail to agree with the ideas of Noah Webster or the U. S. Department of Agriculture as to what a vegetable should be.

The vegetable dinner of commerce is not popular because it fails to realize its full possibilities. It fails on at least three counts. The first count is suggested above, but for completeness it is named here again. It is lack of variety. The second is that the vegetables chosen may not have been good specimens of their kind, before they became a part of the dinner. The third count is that the vegetables, whatever their character at the start, have lost their individuality in the stew-pan. The last count is the fault of nobody except the cook; but the first two are general charges, which pertain because the public does not know its vegetables.

Twenty Years of Vegetable Dinners

Consider the first charge; namely, lack of variety. Twenty vegetables are produced in sufficient quantities that carload shipments are made during a large part of the year. Suppose that fifteen of them can be found on the market at a given time. Figures will show that with fifteen vegetables, 3,003 combinations of five each are possible. Three different vegetable dinners a week for nearly twenty years, made up of vegetables common enough to be shipped by the carload!

If the strict vegetarian should draw on the back-yard garden in which all the offerings of the seed catalogues are given a trial, he could have three different all-vegetable meals a day throughout his life, if he lived a thousand years! If the vegetable dinner lacks variety, it is because somebody either has no imagination or does not know his vegetables.

How Many Do You Know?

The following list of vegetables can be found in seed catalogues circulated in the United States:

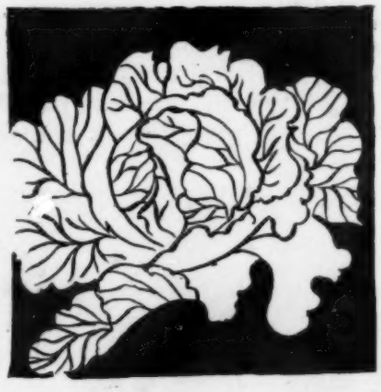
artichoke	collards	parsnip
asparagus	corn-salad	pea
beans	cress	pepper
(common	cucumber	potato
kidney	cushaw	pumpkin
Lima	cymlin	purslane
sieva	dandelion	radish
soy	dasheen	rhubarb
tepary	dock	romaine
Windsor)	eggplant	rutabaga
beet	endive	salsify
borage	escarole	scolymus
borecole	fennel	scorzonera
broccoli	fetticus	sea-kale
Brussels sprouts	girasole	shallot
cabbage	gumbo	skirret
cantaloup	horseradish	sorrel
capsicum	kale	spinach
cardoon	kohlrabi	squash
carrot	lamb's-lettuce	succory
cauliflower	leek	sweet corn
celeriac	lettuce	sweet potato
celery	lentil	swede
chard	martynia	taro
chayote	mercury	tomato
chervil	muskmelon	turnip
chicory	mustard	udo
chilli	(salad,	vegetable mar-
Christmas salad	not seed)	row
chive	okra	watermelon
chufa	orach	witloof
cibol	onion	yam
citron	parsley	yautia

The accompanying list does not contain all the vegetables. All the items in it, however, are generally classified as vegetables, though one who is acquainted with botanical definitions may insist that many are fruits.

The tomato, for example, has been the cause of many an argument. One of the latest of these raged for several weeks in Pennsylvania

VEGETABLES?

newspapers and farm journals. The argument was started when the judges at a county fair rejected a jar of tomatoes from an exhibit of canned fruit. They were sustained in their decision on the ground that exhibits were classified on the basis of commercial rather than botanical usage. In the latter usage, anything pertaining to plants is vegetable, and it may be fruit, seed, flower, stem, leaf, root, or whatnot in addition. Common usage, which defines the every-day meaning of a word, agrees that a vegetable is any succulent plant or plant part which is ordinarily eaten in the main course of a meal. Fruits, in similar usage, are eaten in the dessert only.



Every one ought to know his vegetables for various reasons. One who provides food for others, whether as housewife, boarding house manager, hotel commissary or restaurant keeper, should know them for particular reasons. No rule of diet is complete without reference to them. They constitute an industry of increasing national importance. They are pleasant and abundant sources of necessary minerals and of the all-important vitamins. In particular, they have their seasons when their quality is best and usually their cost least. They have their characteristics by which one can determine their quality before purchase, rather than later, by the proverbial proof of the pudding. If one knows them, he can choose vegetables by appearance and not be deceived.

The importance of vegetables in the nation's business can be measured by the extent of the industry and the annual value of the product. Vegetable crops occupy over 8,000,000 acres of land, and are worth approximately $1,200,000,000. To haul the total crop to market requires over 600,000 cars plus a tremendous fleet of motor trucks, the count of which cannot even be guessed.

The industry is increasing for several reasons. One of these is widespread popular knowledge on the value of vegetables to healthful living; another cause is increase in population; a third cause lies in the fact that as population increases, the relative consumption of vegetables becomes greater, while that of meats becomes correspondingly less. When land becomes crowded, there is less room for livestock.

An interesting feature of this general upward trend is the surprising increase in crops that have been recommended for vitamin content. This circumstance proves the effectiveness of vitamin education by health agencies and workers, through newspapers, magazines, public schools, health clinics and other channels.

Acreage of Vegetables Increases

From 1924 to 1926, the acreage of carrots increased from 11,480 to 16,000, an increase of nearly 40 per cent. Much of this increase is in Texas, from which early bunched carrots are shipped. These bunched carrots are young and very tender, and many are served raw in salads.

Onions occupied 74,560 acres in 1926, as compared to 65,090 acres in 1924. Much of the new area is devoted to the growing of Bermudas and other large onions which are served raw in sandwiches.

The acreage of spinach has increased from 34,390 to 48,530 in the last three years. Fifteen years ago, so little spinach was raised for the wholesale trade that the shipping summaries contain scarcely any mention of it.

Lettuce occupied 106,100 acres in 1926, as compared with 68,660 in 1924. The lettuce industry has made amazing progress in the far West. In many Rocky Mountain valleys, even at elevations of 10,000 feet or more, lettuce growing for the midsummer market has crowded out sheep ranching.

Asparagus likewise has made a great increase, but is different from the others in that extensive new plantings have been made in eastern as well as southern and western states. The development of disease-resistant varieties by

the U. S. Department of Agriculture, as well as growing demand, has encouraged growers of this crop to extend the total area from 50,280 to 85,640 acres in three years.

Incidentally our average length of life also is increasing, though of course there are other causes, too.

Available the Year Round

Another feature of the vegetable industry is the fact that fresh green products are available the year round. New cabbage from Florida appears in northern markets in January. Fall lettuce from western New York has not disappeared when the early crop from southern California arrives. The latter continues nearly all the year, but during the winter months it has the markets practically to itself.

Greenhouses supply a relatively small amount of vegetables during the period from October to July—to be specific, they contribute about $15,000,000 worth of lettuce, radishes, cucumbers and tomatoes. Fresh tomatoes reach northern markets during the entire year, coming in midwinter either from greenhouses or from Mexico. Celery may be bought at any time during the year, shipped from points ranging from Florida northward to Canada and westward to Oregon. California ships melons by the carload from May to November. Bermuda sends its early crop of potatoes to our markets before our late crop is half sold. Texas, Spain, Egypt and Chile supply the northern markets with Spanish and Bermuda onions.

With about twenty kinds of vegetables, one region of production treads on the heels of another in its rush to market; in fact, they often trip each other in their haste. The old stand-bys, the vegetables that can be stored over winter—cabbage, turnips, beets, parsnips, celery, carrots and the rest—have always been with us. On top of it all, an intensive market-gardening area near the large cities pours its contribution of fresh vegetables in season into the channels of trade, and often raises the supply and lowers the price until the receipts fail to cover the cost of the baskets in which the produce is sold.

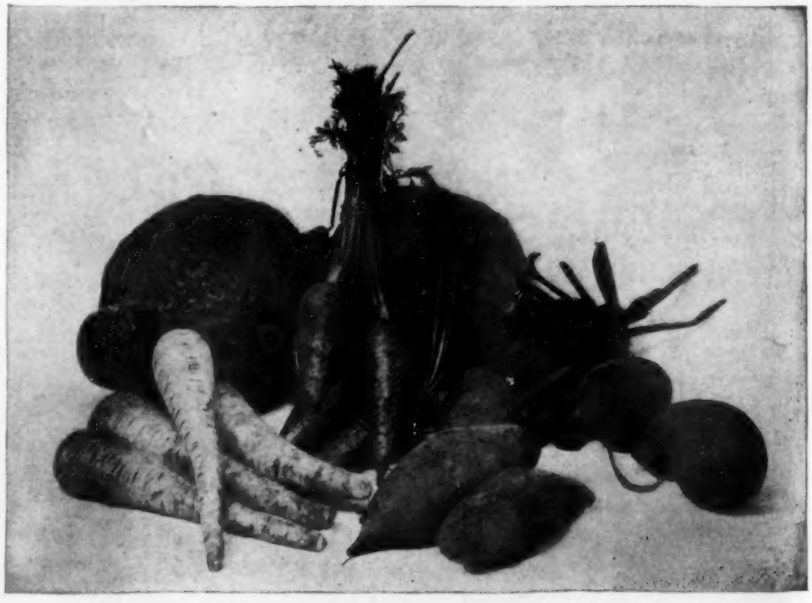
From this unbelievable wealth and variety of produce, the average buyer selects half a dozen kinds and buys them year in and year out. Instead of being a spur to his appetite and a delight to his palate, this great array serves chiefly to clog his imagination. One can get lettuce, why worry about the other salads? The lettuce may be tip burned, battered, watery, tasteless or bitter, as it often is in midsummer. Nevertheless, a salad means a head of lettuce, and a head of lettuce it is.

The point of the whole matter is this: if the buyer were to change his shopping list with the market, he would be better off, and so would everybody else. The ultimate consumer would get the variety and the good quality so necessary to an ever-vigorous appetite; the dealer would get rid of his heaviest and most perishable stores; the growers would be encouraged to produce when the cost of production is low. No more money would change hands, if as much, but it would be more evenly divided. The railroads might get a little less for hauling vegetables, but they could make it up by transporting local vegetable growers to Florida for the winter.

Buy Most Wisely at Season of Plenty

We shall now see how this can be done. As a general rule, a graph representing local supplies of a vegetable crop, when turned upside down, represents the market price of the same vegetable. Another general rule is that the best vegetables or perishable fruits are often those that are dumped into the river or left in the field. Combining the two maxims, we get the following rule: buy your biggest supplies of a given vegetable when it is most plentiful, if you want the best quality and the best price.

The reasons are not hard to find. The best quality in many fruits and practically all vegetables is attained only when the product reaches proper maturity in the field, and is quickly harvested and distributed when this stage is reached. Certain vegetables will tolerate a



Old stand-bys among the vegetables. The usual vegetable dinner lacks variety.

larger margin than others in time of harvesting and marketing, but, even in these, top-notch quality is not held for a long period, unless the vegetables are held under well-regulated storage conditions.

Better varieties usually are raised for nearby markets, because durability is not required. Durability and shipping quality are synonyms, but durability and table quality are antonyms. For these reasons, the vegetables produced nearest the market and marketed directly are best.

Locally grown vegetables in northern states usually reach the markets in the midseason of the sections that ship produce into these markets from some distance. As a consequence, the arrival of local vegetables marks the start of flood tide. The season of plenty is therefore the season of excellence, because local or nearby produce is on hand.

For local markets north of the Mason and Dixon line, the seasons of the leading vegetables are roughly the following: early cabbage, June and July; sweet corn, July to frost; lettuce, May, June, July, September; early celery, August and September; green peas, June and July; green onions, May; snap beans, July to cold weather; bunch beets and carrots, June to cold weather; green lima beans, August to frost; early spinach, May and June; early radishes and turnips, May and June; tomatoes, July to frost; cantaloups, late August and September; fall celery, late October to January.

Toward the South, the season is about two weeks earlier in the spring, for every hundred miles; in the fall it is correspondingly later, until the late crop merges into the early one of the next season.

The one who knows his vegetables can select the good ones, whether or not he knows where they came from or when they were picked. His knowledge is nothing occult.

How to Judge Quality of Vegetables

Good quality is all that makes a vegetable agreeable and pleasant to the eater. Fine appearance, tenderness, crispness, succulence, firmness, full, rich flavor, high color—all are parts of good quality. The best of all these factors in quality is secured in a given vegetable by growing it rapidly to maturity, under favorable conditions of weather, soil fertility and moisture supply. Vegetables grown under these conditions have easily recognizable characteristics that distinguish them from others not so fortunately raised. These characteristics, together with the marks of proper maturity, are the guiding signs in the search for good quality.

Leafy vegetables that grow rapidly have crinkled or wavy leaves, with inconspicuous veins or ribs; root crops that have not been allowed to loaf along the way will have small taproots or tails and few hairy side roots; the tops will be small in proportion to the size of the roots. Well-grown roots will be firm, heavy and smooth. Vegetables that botanically are fruits should have the same characteristics. Stems or stalks that are young enough to be tender, though big enough to attract attention, will be relatively free from furrows, grooves and large nodes or joints.

Here are some home grown winter greens and salads. The Witloof chicory and rhubarb (center) can be grown from roots in moist sand in the cellar. The parsley and water cress (left and right) will grow in a window or fern box.

Selecting Good Asparagus

To be specific, asparagus of good quality has thick spears that taper gradually. The scales are inconspicuous and tightly clasped. The green portion, except in very large grades, should not be more than 8 inches long; in smaller grades, a length of 8 inches is too much. Except in "white," or blanched, asparagus, the white portion is usually too tough to be eaten, and therefore the less of it, the better.

Rhubarb is usually all right unless it is wilted. Preference is given to red color. Some may scoff at the idea that color is a part of quality. It undoubtedly is, however. The vegetable that looks good is best, all other things being equal. It is certainly more agreeable to eat something that is pleasant to the eye than something that is not. Sight, as well as taste and smell, assists in our enjoyment of food; therefore quality must defer also to sight.

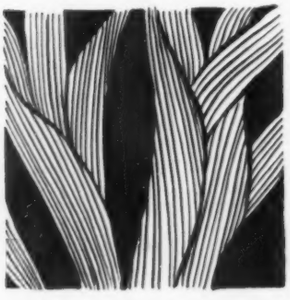
Good celery is hard to find on many markets. The chief reason is that buyers insist on a well blanched product. As a result, farmers raise the kinds that are easily blanched—the light green, easy-blanching or yellow varieties—instead of the dark green ones, which require three times as long a period for blanching. Besides, the growers plant these varieties so that they mature before the cool days of autumn arrive, and the rich, nutty flavor of soil-blanching and red-brown weather remains forever a stranger to

them. Some producers have attempted to hasten the day when celery and cash change hands, by using anesthetics to take out the color more quickly than Nature alone can do it.

A few green leaves on the bunch will be one clue to good quality. Stalks with good thickness well carried up, with considerable overlap at the base, and with ribs that are not too close together or prominent, will be further evidence; a creamy-white heart that extends well upward through the bunch completes the case. Stalks that are flat all the way to the top are nearly always tough; on the other hand, stalks that are thick in both directions are usually tender and juicy.

Types of Lettuce

One of the varieties of the finest quality has stalks that are almost circular in cross section, from a few inches above the base to the top. Unfortunately this variety does not stand the wear and tear of the carload trade well, and is grown for discriminating patrons by those producers who are near their markets.



Lettuce for the midwinter trade is nearly all of one variety. This variety, by the way, was introduced by Peter Henderson and named New York or Wonderful. It is now grown as a leader in the Imperial Valley, California, and there travels under the name of Los Angeles. When it reaches the eastern markets, every one calls it Iceberg.

For crispness, juiciness, solidity of head, rich green outer leaves and white heart, and ability to bear up under shipment, Iceberg, New York, Wonderful or Los Angeles is all that can be desired. The only thing it lacks is flavor. In winter, when there is nothing else to be had, it cannot be beaten, except possibly by the greenhouse product.

In spring and summer the butterhead, romaine or loose leaf types are more enjoyable food. The butterhead types are easily recognized by their yellow-green outer leaves, which are wavy rather than crinkled and which sometimes have a bronze hue, and their somewhat softer, cream colored hearts. Romaine usually is so named in markets, and loose leaf lettuce cannot fail to be recognized. No lettuce is good if it is too old, is tip burned or has started to go to seed. Old lettuce will exude a milky juice when a leaf is broken off; tip-burned heads have brown-edged leaves or brown streaks through the head; heads that have started to go to seed are elongated, relatively hard at the ends, and soft on the sides, instead of being uniformly firm all over. Loose leaf lettuce contains more vitamins than the heading sorts.

Onions with smooth, shiny skins and with small, well dried necks are preferred, when mature or dry onions are the order. The requirements for green or bunch onions are different, however. Here a thick, well blanched neck and an inconspicuous bulb are desirable. A thin neck and large bulb usually mark a hot one. In general, color has no relationship to strength.

Cantaloups, or muskmelons, ordinarily are tested so much by a popular method that this method cannot be trusted, unless one happens to be the first to examine a basket or crate of the melons. This popular method is by pressing on the ends, particularly the end to which the blossom was attached. After a few tests, however, even a green specimen will give the "ripe" test.

To Pick a Good Melon

To pick a good melon, one must know a few facts about melons. One of these facts is related to the general rule that to be good a vegetable must be grown rapidly in a favorable environment. A melon grown in this way will be recognizable by its abundant netting (if it is a netted variety), its prominent ribs, with well-marked grooves between them, and its relative rotundity. That is, a melon that has prospered well will be shorter from stem to blossom end and wide in the other direction, as compared to others in the same crate. Another fact about melons is that they must be ripe to be good, and to be best they must be ripened on the vine. Ripeness can be detected by softness at the ends (if no one has pressed them already), yellowish rather than greenish undercolor and rich odor. If the melon has been ripened on the vine, it has no trace of a stem left on it.

Melons are harvested, according to distance and time from market, at the green-mature stage, the half-slip and full-slip stages. When they are harvested in the first stage, the stem must be cut or twisted off, and some of it will be left on the melon; when harvested in the full-slip or vine-ripened stage, the stem separates readily from the fruit, having a yellowish or pink scar. By this scar the vine-ripened 'loup is known.

Northern cities are full of people who do not understand why any one, white or colored, can become enthusiastic over watermelons. Their trouble is that they give up trying before the good ones arrive. Even in Atlanta, Ga., there is a proverb that watermelons are not good before the Fourth of July. Six weeks later, the proverb would fit New York City.

Snap beans should snap rather than bend. The beans in them should be tender, and if they are well developed they will be good.

The earliest, small round peas are not as sweet as the more angular ones that appear a little later. The smooth ones store their carbohydrates in the form of starch; the angular, wrinkled ones store theirs as sugar. Sugar tastes better than starch.

Sweet Corn Must Be Fresh

Sweet corn changes half its sugar into starch in twenty-four hours, if it is not kept cool. If the ears are cool to the touch, and the kernels plump, moist and shiny, and if the kernels emit milk instead of dough when punctured with the finger nail, the chances are that the corn is good. Otherwise, buy at your own risk. Generally, color has nothing to do with the quality of corn, although one of the best varieties, Golden Bantam, happens to be yellow.

Sweet potatoes that are short, thick and spindle-shaped are the kind to buy. The northern-grown ones, like the Jersey varieties, are dry and mealy; the southern-grown Nancy Halls are moist.

Cucumbers that are light green, thick in the middle and whitish near the blossom end are overmature and will never interest the careful diner. The smooth, cylindrical ones that are dark green all over are preferred.

Tomatoes of best quality are smooth, firm, heavy and dark crimson or purple red. The light red ones with flat areas on the sides have been picked green and ripened en route to market. Possibly they have been anesthetized to hurry them along. They are not distinguished for juiciness or flavor.

Eggplants should be heavy, firm and dark purple all over. Green areas or streaks on a purple eggplant should count against it.

Turnips and beets should not be over 3 inches in diameter. They should be smooth.

The only root crop that should have a hollow crown is the parsnip. Large parsnips with hollow crowns, small tops (shown by the size of the scar), and without branches or numerous side roots will not wilt so readily as others if they are kept around the house for a few days.

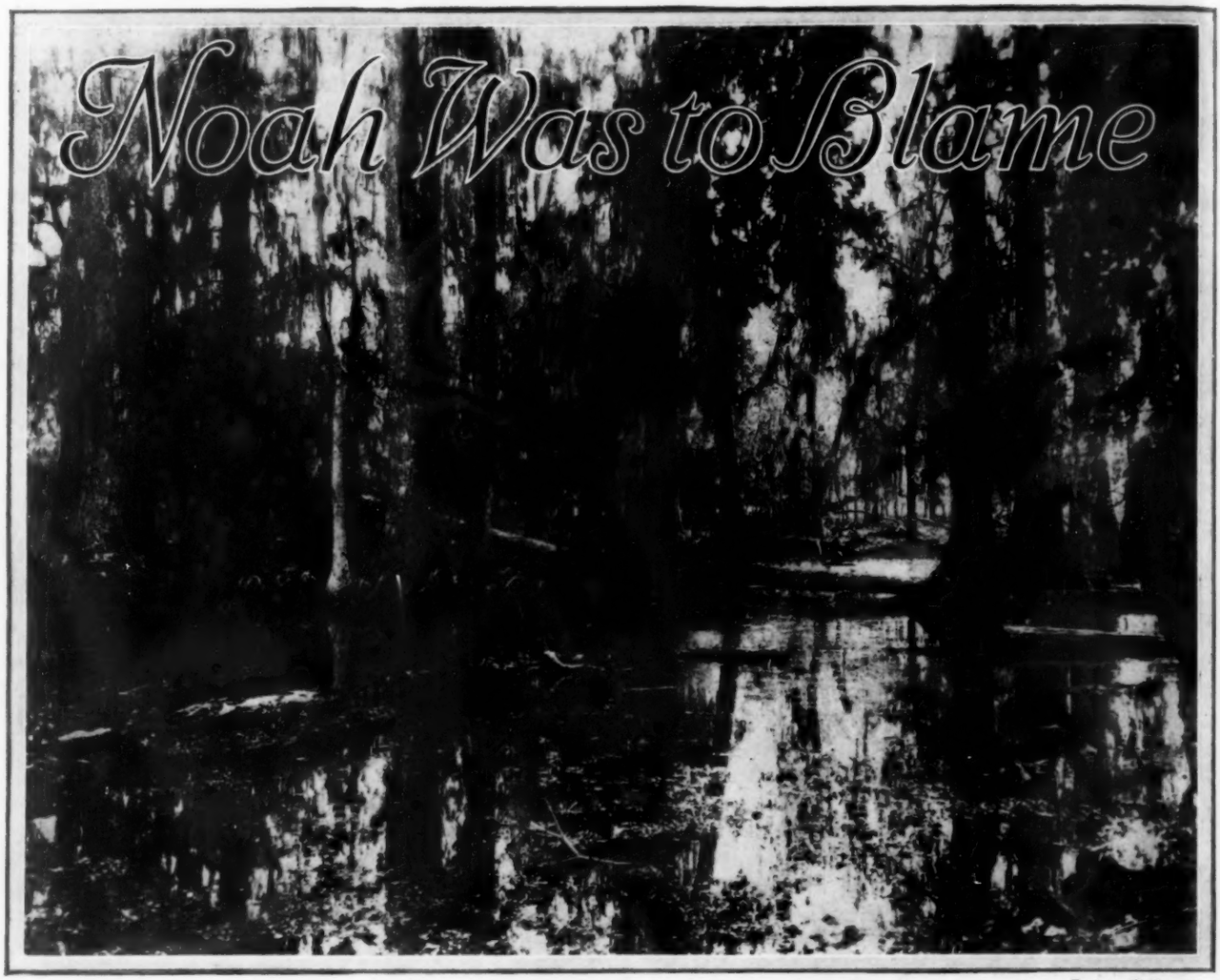
U. S. Labels Are Guarantee

For the benefit of the grower, packer, dealer and busy buyer, the U. S. Department of Agriculture has established standard grades of various kinds of produce. They are especially helpful to the one who buys by the basket or crate. In most produce, the U. S. No. 1 grade is the highest; in many kinds, fancy grades are designated. The best grade is the most economical to buy.

Standard U. S. grades are established for apples, artichokes, asparagus, beans, beets, cabbage, cauliflower, cantaloups, carrots, celery, cherries, citrus fruits, green corn, cucumbers, dewberries, blackberries, eggplant, grapes, lettuce, onions, peaches, peanuts, pears, peas, peppers, pineapples, plums, prunes, potatoes, sweet potatoes, radishes, shallots, spinach, strawberries, tomatoes, turnips and watermelons. The label U. S. No. 1, or U. S. Fancy, on any of these is a real guarantee of the character of the product when it was packed.

As for the vegetables not mentioned, one must either try his luck, accept the dealer's word for it, or learn them for himself.

Noah Was to Blame



Ewing Galloway

The mystery, menace and silence of the swamp.

SMALL BOY (fighting myriads of mosquitoes, while in a boat with his father fishing): "Pa?"

"Now what is it?"

"Why didn't Noah swat both those mosquitoes when he had the chance?"

—*The Passing Show* (London).

THE mystery, menace and silence of the swamps seemed to penetrate the very soul of Amos Howard. He was lying huddled, chilled and miserable as the ghostlike breath of the slowly moving mist came ever nearer the window of the cabin.

"Shut the door and windows, Amanda," he said. "Hit seems we kaint get over the chills and fever when the night air comes in."

Amanda, pale, listless, heartsick with brooding over her good man and three children, shifted the tiny babe to the other hip, gently pushed aside the "knee baby," aged 2, slowly closed the door and barred the windows.

"I reckon yo' kaint work at the mill any more this week, Amos," she said. "The chills and fever do pull you down powerful quick. It seems none of us no more than get shet of one spell than we have another. Maybe ef we prayed harder we'd be given strength. Maybe the fever wouldn't have taken Cora Lee and Daniel ef we'd trusten more."

Amos, looking at his wife and little children, called them to him, raised his heart and voice in supplication to the Master of all things and pleaded in simple faith that the "complaint" that kept them unhappy, discouraged and poverty stricken would be cast out forever.

CARDINALS called, marsh hens chattered, swamp hawks circled, crimson skies faded, purple shadows softened, darkness came, frogs intoned, stars appeared, an old darky singing "All God's Chillen Got Wings" trudged slowly homeward.

Two men talked, unheeding time, place or Mammy's, "Now honey, yo' all needs yo' suppah."

"Malaria is weakening the men, crushing the women, robbing the children, wasting time and squandering money," said Dr. T. W. M. Long.

The Mosquito Menace

By
L. B. McBrayer
and
Theresa Dansdill

The habitat of the "unseen, small but million-murdering cause."

"The female anopheles mosquito hiding in the marshes in the day time and bringing fever and sickness at night is reducing the labor output of your mills. Eighty per cent man-machine production last year is shown against 93 per cent in northern mills.

"Destroy the mosquitoes, weed out their breeding places, kill the malarial parasites in the human body, educate the community, and you will have a group of workmen as fine as any in the world. And they will be as free from malaria as that bronze statue yonder, if you and the other mill owners will only provide a minimum sum to finance the campaign."

"Make them into fine workmen!" said Mr. Patterson. "Those men are too cussed lazy and shiftless to earn their salt. They work just enough to get by and call it a day. Sometimes I'd like to fire the whole bunch. Tramps! That's what they are. Moving here one week, staying a few months, then going on, always hunting for the promised land. You can't make roses out of radishes," he said.

"Of the workmen in your mills 49.8 per cent either have malaria now or their clinical history shows they have had it within the last nine months," replied Dr. Long. "Of course they are do-less. I wonder how they get as much done as they do."

The mocking birds caroled, whippoorwills trilled, crickets whirred, the high notes of a colored nurse girl sang, "Saints an' sinners will-a-yo'-go, See de heabenly lan'." Mr. Patterson gazed with affection at the young doctor and said:

"All right, go ahead. I haven't very much faith in your foolish notions but I am willing to take a chance on there being a bit of truth in them. Keep expenses as low as you can and go to it. If you can demonstrate that any measurable improvement has taken place, it will be worth the money."

Brighter than the radiant harvest moon shining on the magnolias and long-leaf pines was the heart of the physician visioning the opportunity to fulfil his dreams. He planned to use every talent he possessed to make the campaign do all he knew could be accomplished by scientific methods.

Through the open window came the foot tap and lullaby, which was not a lullaby at all, of the colored nurse girl:

> I'm gwine up to heaben,
> To see mah robe
> See de heabenly lan',
> Gwine to see mah robe an' try it on,
> See de heabenly lan'."

THUS begins the story of a crusader for other people's good, who conquered malaria in a North Carolina county, raised the labor production of the mill workers to 105 per cent, or 5 per cent more than man-machine output is supposed to produce, reduced the malaria morbidity rate from 49.8 per cent to one tenth of 1 per cent and has kept it there for the last eleven years.

In October, 1913, in Roanoke Rapids and Rosemary, N. C., Dr. Henry Carter, then assistant surgeon general of the U. S. Public Health Service, J. A. Le Prince, sanitary engineer of the government service, Dr. R. H. Von Ezdorf, scientist of Washington, D. C., and Dr. Long of Roanoke Rapids, N. C., began the first intensive survey and practical demonstration for malarial control ever conducted in the United States.

Until the last few years malaria has taken a pitiful toll in the South. It came before the earliest settlers and will go only when its host and carrier vanishes from the earth. In the little church in Bath, N. C., one of the oldest towns in the United States, is a tomb that bears the following mute chronicle of "chills and fever":

> Here lyes the body
> of
> Mrs. Margaret Palmer,
> wife of
> Robert Palmer,
> who departed this life,
> Oct. 19, 1760,
> aged 44 years.
> After laboring ten of them under the severest Bodily affliction brought on by our change of Climate and tho' she went to her Native Land received no relief but returned and bore with uncommon Resignation and Resolution to the Last.

Dr. Long had had the dream of conducting a malarial survey and demonstration for some time but it took money, the mill owners were opposed to it, and more than once it looked as if his were a hopeless task. These were elusive foes he was trying to combat and the mill owners could not believe that a tiny mosquito could cause so much misery and disaster.

Swamps Are Drained

Finally Sam Patterson, millionaire owner of some of the largest cotton mills in the world, decided to give the idea a trial, not that he believed in it but because of the deep affection he had for the young doctor with the "queer notions."

Roanoke Rapids and Rosemary are bounded by three swamps which, undrained, were million power incubators of malarial mosquitoes. Ninety-five per cent of the working-age population of these places is industrial, employed in the three cotton mills, two paper mills and one hydro-electric plant; consequently whatever increased or decreased the efficiency of the workers raised or lowered the general well-being of the entire county.

Everything has to have a beginning. The general methods and procedures outlined in the following paragraphs are known now to every health worker in the land. In October, 1913, they were new, practically untried, the target of attack and even amusement in many places.

The swamps quivered with whispers; the black pools rippled with pictures; the long vines and underbrush swayed with age-old silence as the clearing crew began work that morning. The swamps were drained and ditched, vines cut and undergrowth cleared away in the fight to stamp out malaria. Later oil drip cans were installed at the head of each stream and at the springs. These cans were kept dripping during the incubation and growth period of the anopheles mosquitoes, thereby destroying the larvae.

Clean Up Ditches Every Spring

Each year since 1913, in Roanoke Rapids, Rosemary and the surrounding territory, the annual clean-up of ditches, undergrowth, yards and premises begins in March. The oil drip cans are put in operation April 1. The workmen and their families are trained in healthful living. Houses are screened and sanitary toilets installed.

The entire cost of the campaign the first year was $3,700, paid by the mill owners. The annual cost of maintenance since has been about $1,500. Now the mill owners would gladly give that amount many times over; they estimate that they received in labor returns and production $10 for every dollar expended the first year.

> A spry youngster named Peter
> Said: "Just watch me catch every skeeter."
> While scores he dispatched,
> In the swamps millions hatched,
> For the skeeters were fleeter than Peter.
> —*Mary S. Haviland.*

PETER'S idea of mosquito control was the general one in 1913. Here and there a clear-visioned, forward-looking doctor or educator realized the root of eradication lay deeper than a "kill the mosquito" and "swat the fly" campaign. The great rank and file swatted.

The teachers in Roanoke Rapids and Rosemary were trained and taught their pupils that the solution of the problem was located in the breeding places of the mosquitoes, and with the enthusiasm with which most new crusades are received, teachers and pupils outlined their plan of attack.

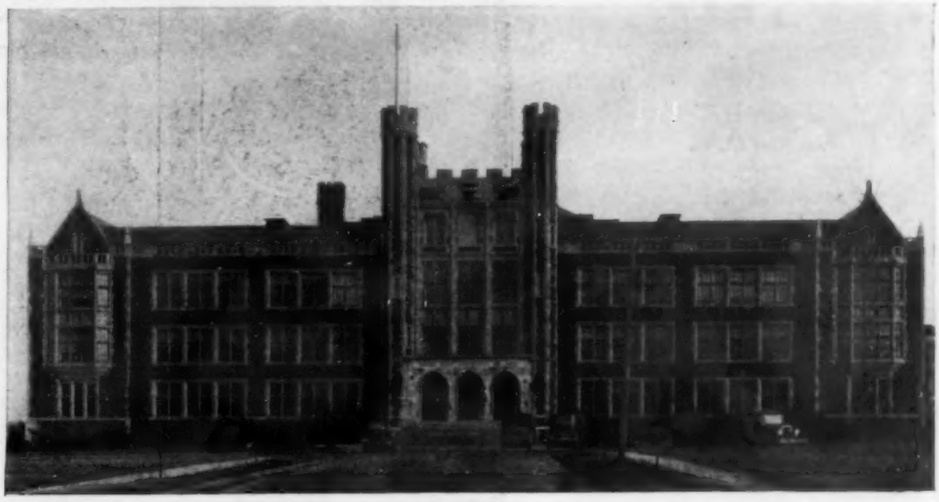
Tin cans were destroyed, sagging troughs cleared and mended, rubbish burned and the water standing in open tanks, cisterns and barrels was either screened or stocked with minnows. When the surface of the water was

too large to be drained or screened it was covered with kerosene oil.

The small boys had the time of their lives making marble and kite money from the sale of minnows. "Want some minnies for your rain barrel, Missus?" was not an unusual question asked by a stub-toed, one gallused youngster.

of trained and student nurses give their time and energies to the hospital.

The preventive side of medicine is stressed in the school and home, thereby helping to keep well many who otherwise might be ill. A public health nurse resides in each village and helps to train the people in habits of health.



Here the girls and boys are trained daily that health is desirable and attainable.

A prize of $10 was awarded to the high school student who wrote the best essay on some phase of malaria control. This essay contest has become an annual event.

IT TOOK almost four years to cure the malaria patients. They would take quinine until they felt better, then would stop taking it before they were entirely cured. They knew what they ought to do to get rid of malaria, but the flesh got the upper hand of the spirit.

Twenty years ago the inhabitants of the county of Beaufort, North Carolina, thought that malaria was caused by impure drinking water. They dug deep wells, sunk hundreds of feet through rock, and used the water from them. The morbidity rate from malaria did not decrease, but typhoid fever, a water borne disease, has been practically eliminated from the county for many years.

After getting rid of the curable cases and the preventable causes of malaria, the resources of the mill owners were directed to the attack on the minimums, which at first appeared irreducible, with the following concrete projects:

A $120,000 hospital was built by the mill owners and equipped by physicians of the community. Every case from knife wounds to pneumonia is taken there for treatment. The only patients not treated are those with smallpox, tuberculosis or mental disorders. Tuberculosis patients are sent to county or state sanatoriums. Five physicians and a full staff

The first free typhoid clinic in North Carolina was held in Roanoke Rapids by Dr. Long and his assistants. The mill owners donated the serum and the physicians gave their time and services.

There is an up-to-date high school, complete with laboratories, gymnasium, swimming pool and rest rooms. One-half the expense of this building was borne by the mill owners, the other half by the taxpayers.

The Roanoke Rapids schools rank first in North Carolina in academic and financial efficiency in the division that includes the smallest city school systems of the state.

The tuberculosis survey for children, conducted by a trained clinician from the state tuberculosis sanatorium, shows that there is the smallest percentage of children with positive reactions to the tuberculosis test of any place in the state in which these surveys have been made.

Healthy, happy, wholesome, vital—the mill workers today bear no semblance of the weary, discouraged men they were before the campaign began.

Each little home has a garden plot, which is plowed in the spring at the mill owner's expense.

A building for unmarried woman operatives, in which board and room are supplied at a nominal fee, adds to their comfort.

Life once so full of pain, suffering, foreboding and trial now stretches along a shining trail of gay adventure. They are healthy in body, mind and soul.

A Health Week in Industry

By A. E. Kidd

THE health of every worker is of great importance to industrial organizations. Sickness is wasteful and takes its toll of business and the worker alike. Idle machinery, tools, floor space and low production follow any considerable amount of sickness, resulting in economic losses to business. Pain, suffering and the general unhappiness caused by illness is borne by the worker, and in addition he has to bear hospital charges, physicians' fees, the loss of wages, and other expenses. Progressive employers are constantly on the alert to adopt practical measures that will conserve health and eliminate waste for both economic and humanitarian reasons. The policy pays the employer and relieves the worker of anxiety.

What Is Done for Sick Employee

The Western Electric Company, which manufactures and distributes telephone apparatus and supplies, has always had a positive interest in the health of the more than 46,000 persons who comprise its personnel. Among other things that are generally accepted as good industrial health practice, this company retains a number of physicians and nurses who perform physical examinations and give emergency treatment to employees who become ill or injured while at work. Its medical equipment includes emergency hospitals at its principal manufacturing plants at Hawthorne, Ill., and Kearny, N. J., and first aid rooms at many of its distributing houses and repair shops located in principal cities throughout the country.

A benefit fund maintained at the expense of the company provides for payments to sick and injured employees, thereby relieving some of the financial distress that frequently results from sickness and accidents.

Steps Taken in Prevention of Sickness

These agencies, while they tend to alleviate conditions resulting from sickness, are principally directed at the difficulties arising out of illness when it occurs, and in recent years there has developed a conviction that prevention is the logical answer to the health problem.

The question was attacked from this angle, and about four years ago a program of education in hygiene was started. At first this program consisted largely of posters, which were prominently displayed at all locations where the business is conducted. These were designed to show attractively the advantages of good health and to present some of the simple rules of hygiene. Following the display of these posters, it became evident that there was a well defined interest in hygiene among employees, and in 1927 it was decided to devote a week to inten-

sive consideration of the question of how to acquire and maintain good health.

This week was designated as Health Week, and in one of the larger departments a method of presenting health information was adopted, which gives promise of promoting a better understanding of health than had been possible by other means. The method used is known as the conference method. Invitations to participate in health conferences were extended to the members of the organization. Publicity was given to the plan through employee publications and posters, which helped to arouse a general interest in health week activities.

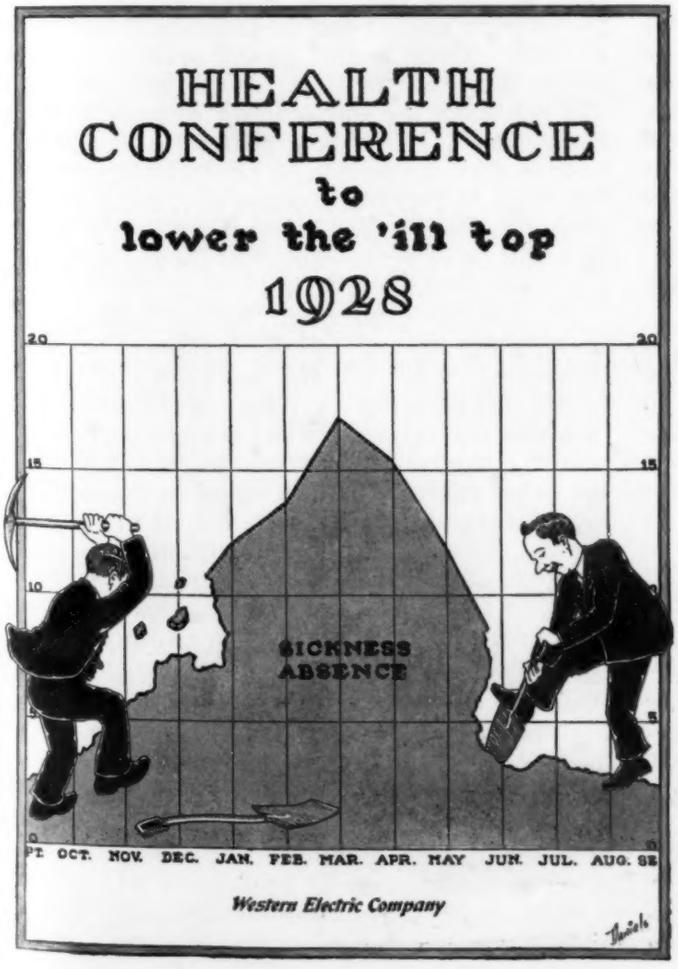
How Conferences Are Conducted

Under this plan, conference leaders were appointed, and as none of the leaders were professionally trained, it was necessary to develop and supply to them a text that would give them a background of health information and an outline of the objectives of the conferences. The text was written around the idea that good health is a business and social asset, which can be increased through intelligent action or lost through carelessness. The material for this text was drawn from many sources and was worked up in conjunction with the physicians who are responsible for the medical work of the company. The leaders do not in any way usurp the functions of the medical profession but rather tend to bring about an appreciation of the benefits of cooperation with its members.

The conference plan is interesting. Instead of the usual lecture method of presenting a topic, the leader stimulates discussion of health subjects by asking questions of the members in the group, allowing the group as a whole to discuss the advantages and disadvantages of one another's ideas. In this manner the group tests the validity of certain ideas. Wrong ideas are aired and those who hold them are influenced to accept the right idea by the weight of the opinion in the group. The leader does not attempt to force a conclusion or to decide a point; he guides the discussion and the conferees arrive at their concepts by debating their individual needs or characteristics and the adaptation of health principles to them.

Open Discussion Is Best Plan

The group open discussion is most effective in creating a courageous health consciousness and does not provoke fear or worry about individual deficiencies. Furthermore, the conferees feel that they have had a definite part in shaping the discussion, which completely removes any schoolroom atmosphere and is much more satisfying to mature people.



The content of the text was planned for six half-hour sessions. The first question discussed is "Why health instruction?" and the discussion revolves about the individual's responsibility to himself, to his family, to his job and to society at large for the maintenance of his health. A conviction is established that it is up to the individual to take positive action to keep well and to make his health program a part of his everyday life.

The desirability of making an inventory of health assets becomes evident. As a result, practically all the conferees take the opportunity to have a health examination, some through the physicians retained by the company and others through their own physicians or through such services as are provided by a number of insurance companies.

The second question discussed is "What is exercise?" The purpose of exercise in building the muscular system, aiding the natural processes of waste elimination and building up immunity to illness, is covered. The natural inclinations of each person in the group find expression in this discussion, and a type of exercise that will fit in with their inclinations, their daily work and physical condition is developed. Frequently the members at this conference ask for instruction in calisthenics, under-

take group exercises, attend nearby gym classes, or seek out some more individual form of exercise.

The third question discussed is "Why do we eat?" Food and drink are analyzed as nourishment for the body, which leads to a discussion of the control of health through dietary measures. Charts showing the normal weights for corresponding ages and heights are furnished so that those in the group may compare their weights with an authoritative standard. After this conference there is a noticeable increase in the amount of water consumed during the day and an evident continued interest in the regulation of weight through diet.

The fourth question discussed is "Why do we sleep and rest?" The purpose of sleep is developed and its value in relation to health is discussed. Many conflicting ideas as to what constitutes an adequate amount of sleep are reconciled. The relation of rest, relaxation and recreation to health is also brought out. The interest grows lively when the members discuss their own forms of relaxation and recreation, their hobbies and their leisure hour activities. Some of the conferees learn for the first time that their hobbies and play activities have a definite health value.

Much Misinformation Cleared Away

The fifth question discussed is "What is fresh air?" This gets into the matter of ventilation and temperature control, the value of fresh air and sunlight, the advantages of proper clothing and of bathing. A surprising amount of misinformation about fresh air and ventilation is cleared away and the conferees usually resolve to go in for outdoor sports more actively, to regulate the temperature of their working quarters more effectively, and to carry these practices into their homes.

The sixth and last question discussed is "What is first aid in sickness?" The importance of health habits in building up immunity to sickness occupies the major portion of this conference. Simple rules for the emergency care of minor illnesses, colds, constipation and indigestion are suggested. These rules are such as would aid the physician if his services were required later. The importance of the part that the physician plays in the early stages of illness and disease and the more rapid recovery that follows professional treatment is brought out. Probably the greatest value of this conference is the discussion of the pernicious habit of self-dosing. Almost invariably there are individuals who advocate the use of patent medicines and special remedies that they believe are effective. A number also have formed the habit of using laxatives and headache remedies. There has been a good deal of testimony to show that these habits have been overcome by right living.

At the conclusion of this last conference, a pamphlet prepared by the American Red Cross is distributed to the conferees, which gives in some detail the measures approved by physicians for emergency treatment of minor ills.

During the first trial in 1927, about 7,000 persons attended these conferences and many expressed a desire to have them repeated at some future date. In 1928 the company again sponsored a Health Week from February 6 to 11. The conferences were attended by about 15,000 persons, and in addition other methods of observance were employed, so that practically every one in the organization had an opportunity to join in the celebration. It is estimated that about 40,000 people participated.

Will Take Time to Show Results

The results of Health Week cannot be measured as yet in figures, although some indications point to an improvement. Among those who attended the first series of conferences, fewer were absent due to sickness in 1927 than in 1926. Their health record was, in general, better than that of those in the company who did not have the opportunity to attend health conferences. It is to be expected that it will take time to show the beneficial effects of right living, but there is every indication that those participating in Health Week have begun a program that will be of great benefit to them over a long period of time.

Might not this movement having its beginning in industry spread out to become a national movement with all the agencies for public health cooperating—a National Health Week in which institutions could invite inspection and public cooperation, a week in which through the press public attention could be focussed on right living and enlisted on behalf of the fight against disease? A public health consciousness, based on an intelligent knowledge of facts, motivated by a desire for better living instead of fear or fatalistic acceptance of disease, would be a real force in the advancement of our social and economic well being.

FARGO and the Health Habits

By Maud A. Brown — Part II

WHILE Miss Gay was assembling her primary legion for its march on the hosts of indifference, the next-olders of the third and fourth grades also sprang into the fray. No prophets they, nor adolescent Galahads, but musketeers dashing with brandishing of swords to the defense of their cause. Any cause would do, for this age demands something on which to base its declaration of individuality, some resistance against which to exercise the muscles of the new personality just escaped from swaddling clothes.

Health Cause an Inspiring One

But this cause of health was a peculiarly satisfactory one. It involved running through and holding aloft, with their rapiers of newly acquired knowledge, the errors of their adults. It carried the joyful sensation of enlarged personality, which makes gang membership an essential experience at this age.

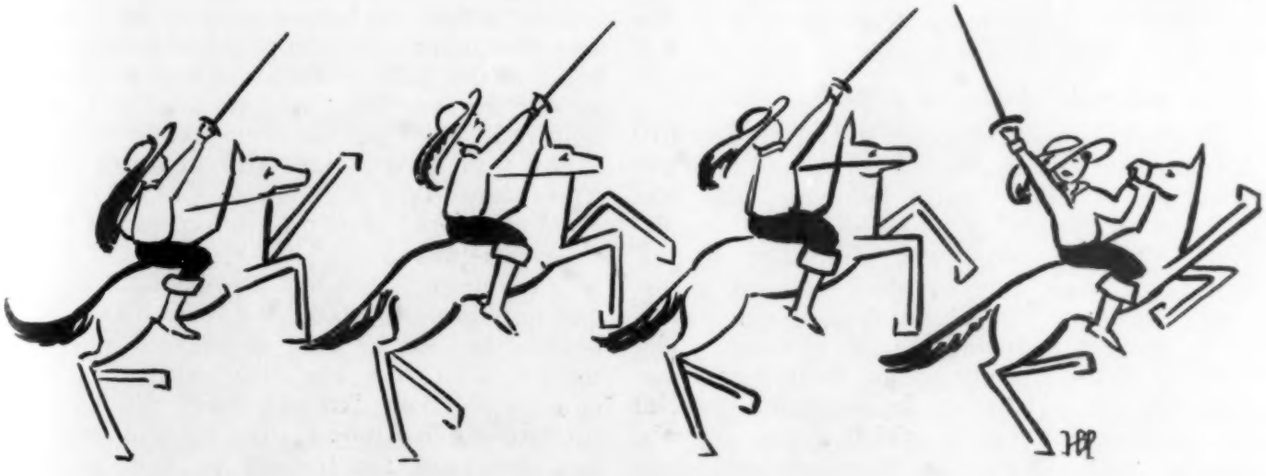
When their teachers explained to them that Fargo was chosen to demonstrate to the world the most important thing in the world, they found nothing surprising in the news. Wasn't their city the biggest little city in the world? Come on, then let's go! Athos, Aramis and Porthos, the 8 to 10-year olders of the public schools, wheeled to attention before their teachers, and beside them the scrapper from Gascony —D'Artagnan of the parochials.

For this story, let us take Athos from the north side, out by the college, and Aramis from the south, though, in fact, they were often near neighbors. Porthos comes from the broad sash whose soiled fringes lie in the slough and the dump and the nearby slums. Poor Porthos, with his perpetual runny nose and the pitiful brave front of his "glittering goldfish coat"—it had hung on the gaudy rack of sweaters at the little side-street store—denying underlying deficiencies! And poor Aramis, the dilettante, kept puny with advantages and ruthlessly shielded from reality! And fortunate Athos, the philosopher, whose questions are answered at home!

Teachers Confronted with Difficulties

The teachers of these musketeers, even more than those of the upper and lower grades, felt the difficulty of an unprecedented situation. Carrying into the third grade the course of health study that was finally worked out was a different matter from beginning at the beginning in the first or second grade.

It was a difficult task to synchronize instruction and drill in the principles of health behavior in Fargo for Porthos, who (literally in one case) did not know the meaning of the



Musketeers dashing with brandishing swords to defend the cause of health.

word "bath" when he entered school and who did not recognize the process when it was described to him by his teacher, or, again, who could not bring a towel for the school bath because they had only one and the boarder wanted it; for Aramis, who accepted as the established order her daily warm tub with violet salts and individual everything, and who at 8 had had her third permanent; for Athos, whose doctor father or mother nurse or professor uncle had taught him more about germs than the teacher knew.

Even D'Artagnan's relatively homogeneous constituency represented such extremes as Ottilie, whose account of her breakfast was "First I et a herring, den I et a pickle, den I et two doughnuts"; Arthur, who ate only "natural foods in natural combinations" according to Professor So-and-So's system; and then the Helen Maries, whose mothers were already giving them food intelligently prepared and adequate, according to dietetic principles.

Porthos, who did not know the meaning of the word "bath."

Fargo teachers were confronted by an emergency situation that did not admit of the normal, slow, precarious course of planting, growth and maturing. Five years were allowed in which to demonstrate results. In order to secure results, the program must be adopted; in order to secure the adoption of the program, results must be shown. To break into this circle and to insure immediately a completeness of observance, which in ordinary course might be hoped for only after a long process of growth, certain war measures were adopted. The first of these—making the report of the home health program compulsory—has already been described. It was applied to the musketeers as well as the young disciples of Miss Gay.

Essentials of Health Behavior Only

This health habit program has been carefully developed to include the essentials and only the essentials of daily health behavior, and was adapted as closely as possible to local conditions. The problem was simplified by an unusual homogeneity of stock—almost exclusively Nordic, chiefly Scandinavian, with a spice of Irish and a sprinkling of German. The severity of the climate added another common element. So, in spite of the disparity of social and economic status in which Athos, Aramis, Porthos and D'Artagnan were revealed their sins of omission and commission with respect to health behavior were pretty generally shared by all the Fargo children.

Fortunate it was that the first round of ammunition had been prepared in advance, for the children opened the campaign with a rush. The teachers had girded themselves for a long patient struggle to "arouse the interest" of the children, and here they were on plunging steeds, waving their pistols and broad-swords, demanding to be off. The first year's campaign was outlined to them briefly. They were first to conquer their personal health habits. This might not be so simple as it sounded. To each child was given a copy of the health record, together with his weight marked on a card and a short communication to the parent as to the significance of weight. Thus armed, they fared forth, carrying the campaign each into his own territory.

Athos probably had the easiest time. One of his greatest difficulties was to curb his (usually her) desire for high grades and love of reading sufficiently to get in two hours of after-school play and an 8 o'clock bedtime. The public librarian—a staunch ally of the health cause—frequently conspired with the teacher to curtail the drawing of books, and many were the surreptitious conversations with Athos' mother.

Athos Had Easiest Fight

His chief foe, and the stubbornest of all, was the "just as good" or the "almost as good" or the "slightly better" substitute. Adults so wise in other ways were sometimes loath to accept the ruling of authority in this matter of daily health. Athos was helped most by the war measure that made compulsory the reporting of the home health habits. He loved high marks, and so did his parents. Rather than fail in the required "hygiene," he and his family made changes in their habits and kept the record. Athos showed the difference. And the new program continued after the compulsion of reporting was removed.

In the main, Athos had an easy fight, since he had only himself to conquer, with all his adults helping as soon as they understood. Even the mother who was too busy with the college courses which she "owed herself" did not object to third-grade Athos getting up and cooking a real breakfast for himself so long as it did not make her miss her 8 o'clock class.

D'Artagnan's parents rebelled most vigorously against the discontinuance of home study assignments. Were they not paying for tuition over and above the regular school taxes? What would they do with the children in the evening without school work to keep them quiet? But D'Artagnan settled that question by taking himself to bed.

One advantage D'Artagnan had over his three friends: the Cardinal (or his Fargo representative) took an active interest in the war his young parishioners were waging. Perhaps the spiritual advisers of the other three were equally interested, but the Gascon felt most directly the added support which the church gave the school and home. They who know their Dumas (or their Doug) remember that the youngest of the quartet joined his fellows after a preliminary skirmish in which he worsted all three. This was literally paralleled in Fargo, when the parochials joined the public schools in the cause of health and promptly walked away with the health cup that had been offered for city-wide competition.

Aramis, perhaps, fought the hardest fight of all, because not hardened by adversity. His foes were literally those of his own household, bent on giving him the advantages denied themselves in their pioneer youth. He had too much spending money, unaccounted for, therefore too much candy and too many movies. And, above all, he had too many accomplishments. Mildred is a case in point.

The teachers know what it means to get Fargo children to eat "cow feed."

The teachers' case record shows her a delicate child, reared from a delicate babyhood by a high-strung excitable mother who "understood" Mildred because Mildred "inherited" her weak stomach and her "nervousness," both freely discussed before the child. She always slept with her to guard her from drafts and to be on hand in case anything happened in the night.

Mildred herself, since enrolling by the side of Athos, has taught herself to drink milk and eat vegetables and has disinherited her mother's delicate stomach, though the nervousness, alas, will never be entirely outgrown. Of the three accomplishments she was acquiring with special teachers outside of school—elocution, esthetic dancing and music—she has dropped all but her music and has limited her practice to one hour a day. Her entertaining at night at home and lodge was automatically eliminated by the 8 o'clock bed hour. It is pitifully uncertain how much Mildred can salvage of her original possibilities, but her own children will have a fair chance.

For Aramis in general, overcoming the habit of overindulgence in sweets was an easy matter, since it meant merely a passing of the family box of candy after meals instead of the former irregular indulgence. For poor Porthos, however, it was a much more severe struggle. The underfed cells called aloud for the penny's worth of candy that would give a temporary stimulation. It was real heroism when he sold a box of Christmas candy and invested in milk tickets. When the new candy store, which opened across the street from one of Porthos' schools took in its array of penny-in-the-slot containers and closed its doors after a six weeks' struggle for his patronage, it meant the utmost in his consecration to the cause.

When Poverty Was an Advantage

But poverty is not always a disadvantage from the point of view of health. There were the Thompsons, fourteen of them. Last year after careful study of classroom programs, the principal arranged a schedule by which each brother or sister was relayed home in turn to take care of the youngest ones, so that no one missed more than an hour of school.

By dint of much persuasion the nurse induced the mother to come for the first time to the school physician's examination. And the Thompsons, duly examined, rated high in health. All were "good" in nutrition, and the collective teeth were the best lot in the city. They kept the health rules as the path of least resistance. They slept, the fourteen of them, in two rooms of a shanty that offered little obstruction to the invigorating winter winds. They played outdoors in the sun because there was no room for them to play in the house. They had no money to buy kerosene or movie tickets and had not even a flivver to keep them out at night.

So their early bedtime and sleep with open windows presented no problem as it did to Aramis, the shielded. Pa fed his family in the only way he could, by keeping a cow and

chickens, and raising a little garden. The fertile Red River soil gave back a thousand-fold for the disultory labor expended on it. Willy-nilly they ate the properly "protected" dietary that pampered Aramis found hard to learn.

So, all in all, irrespective of social caste, the four friends had a pretty even break in the struggle for health. This was, indeed, the saving element in the situation that confronted the Fargo teachers. The struggle became worth while when they remembered that beneath superficial inequalities the underlying needs were the same, and that the motivation and methods developed, if sound, would appeal alike to children of all social and economic groups.

Musketeers Return with Honorable Scars

The musketeers made their sally and fought well with the weapons supplied them. There is no space here to describe their armament in full—the regular weighing, the milk-drinking, the carefully assembled health facts in and out of textbooks, or the intimate councils of war in which physician and nurse and teacher and supervisor played a part. Practically all the children were vastly improved, but mere improvement was not the goal. Most of them have not achieved perfect health programs. The one neglected essential keeps the otherwise perfect regimen from functioning in satisfactory health.

Comparatively few of the musketeers came back completely victorious; most of them returned with honorable scars, reporting "I've done the very best I can, but . . ." The teachers, forearmed with their study of health problems and the information already accumulated about each child's specific situation, settled down to siege.

That is the present status of the health education program in Fargo. Taken over by the city after the state of siege began, it is surrounded by no misconceived enthusiasm. Those teachers, with their new supervisor of health education, know what is before them. They are sufficiently encouraged by the great progress that the children have already made. They know what it has meant to substitute milk for coffee in a Scandinavian-American community; to get hinges on storm windows in the face of North Dakota winters; to persuade Athos to grow "cow-feed" in the garden after school; to lead Aramis to take her exercise in the sunshine instead of a studio; to induce Porthos to take off his red and green striped sweater and show a clean shirt underneath.

Must Now Hold Ground Gained

Athos' school grades are even better; Porthos' colds are things of the past, and Aramis no longer needs surreptitiously to pinch his ears to make them pink. But the teachers realize the eternal vigilance and progressive effort that is the price even of holding the ground gained, much more of the final effort that puts each child over the top and makes permanent his place on a higher health level.

Nevertheless, ultimate success is now assured. These teachers have seen a sufficient number of school children gain the security of the high ground to be certain of the possibility and desirability of its attainment. Being teachers, that settled it for them.

That the sun shines even in Pittsburgh is proved by the healthy appearance of this 1 year old from that district.

A Visit to the Ross Institute

By Kate C. Mead

The Ross Institute for Tropical Diseases and Cancer Research is at Putney Heath, London.

AT LAST there is in London a laboratory and hospital for the study and treatment of tropical diseases and cancer worthy of the name that has been given it. The Prince of Wales opened the Institute in July, 1926, and dedicated it in honor of Sir Ronald Ross, who has given the best years of his life to the study of malaria in the tropics, thereby saving hundreds of thousands of lives and making it possible to finish the digging of the Panama canal, as well as to provide for the adequate production of rubber, cocoa, tea, coffee, copra and other necessities that can be grown only in hot countries.

In a Sunny Suburb

The Ross Institute is about ten miles south of the heart of London, in the suburb of Putney. We take the underground railway to Putney bridge and cross the Thames by bus 51. This bus takes us up hill through the village to the great wild heath where for miles toward the west there seems to be a never ending stretch of moors and trees and such sunlight as seldom shines through London smoke.

The Ross Institute building is a modern mansion standing in the midst of a large garden. It is shut in from the street by tall shrubs and trees, and from all its long windows the visitor gets charming views of green lawns and flower beds. The building has central heating, which is unusual in England. Evidently patients from the tropics are supposed to like to be warmed through and through instead of one slice at a time at the chimney corner.

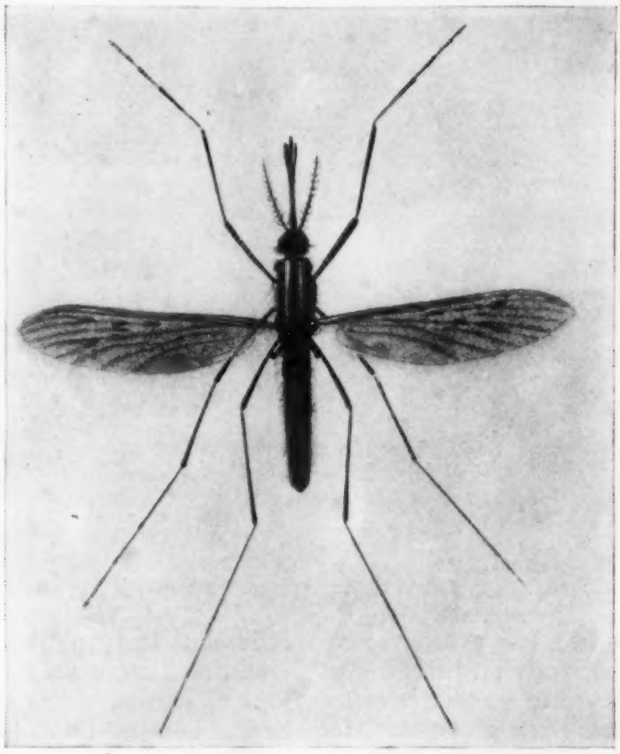
But it was now August and the sun was pouring into the wards. The patients, who were propped up in bed listening to a London concert over the radio, looked cheerful, warm and happy, in spite of their infirmities and nauseating doses of emetin. In olden times emetin, in the form of tartar emetic or antimony, was sold and used for every disease under the sun, and it probably did more harm than good, but under Dr. Aldo Castellani's skilful handling its true value has been found in the treatment of amebic dysentery, elephantiasis, and other tropical infections.

Institute Museums Are Fascinating

Besides two large sunny wards for patients there are in the Ross Institute many laboratories where the directors and their assistants and other scientific investigators can do research

work with microscopes, culture ovens, refrigerators, sterilizers, and all other necessary apparatus. There are rooms for the superintendent and nurses, for business meetings, for cancer research and for a museum of specimens. In this museum is an interesting array of test tubes holding an assortment of human molds in every color of the rainbow; above each one is a lantern slide of the human creature who furnished the organisms found living in his skin or lungs. These specimens have been gathered from all over the tropics and are as proudly exhibited as if they were a collection of beautiful orchids.

One room is sacred to the particular pets of Sir Ronald Ross, his anopheles mosquitoes. These he rears under nets, "exposes" to malarial patients, feeds until they are ready to be used in giving the malaria cure to a patient paralyzed with syphilis, and then kept for study and for breeding purposes. This treatment of syphilitic paralysis with malarial fever germs is enabling many seemingly hopeless invalids to go back to work and support their families instead of being dependent for the rest of their days.



A sketch of one of the pets of Sir Ronald Ross—the female anopheles mosquito, carrier of the malaria germ.

We are reminded in this connection of the old rhyme "Big fleas have little fleas to bite 'em, And so on ad infinitum," and we wonder if the time will come when other infectious diseases besides malaria will be found to be a blessing as well as a curse.

On a shelf in the room for cancer research was a collection of glasses holding blood tests by means of which it is hoped that cancer can be diagnosed long before there is any outward sign of a tumor, ulcer or other symptom of this dread disease. Since we are continually being told that the only hope of curing cancer is by cutting it out while it is very small we hope with this new blood test that cancer can be discovered long before it can be seen or felt.

In all the world there are only four institutes like the Ross Institute. These are the Pasteur Institute in Paris, the Kitasato Institute in Japan, the Rockefeller Institute in New York and the Gorgas Institute in Panama.

In each of these a scientific worker can have the opportunity to work with proper tools in comfortable surroundings as many hours a day as he chooses, in order to prove or disprove his theories as to the cause of various diseases.

The Ross Institute needs a tremendous endowment before it can be said to be on as firm a foundation as the other four institutions mentioned. The public should give money unstintingly to such courageous investigators, whose sole object is to rid the world of infectious diseases and to make it so healthful that with increasing population there will be sufficient food produced for everybody.

This work will require years of study, not only of the germs and their poisons but of their breeding places and methods for their destruction. Pasteur lived to see his theories of germ diseases proved, but it will take generations to kill the microbes, amebae, spirochetes and the many nameless organisms which are so low in the scale of life and so small that they filter through almost everything without being seen. They are difficult to kill, too, without injuring the tissues in which they have grown.

Since it is an ameba that causes malaria let us explain what an ameba is. The dictionary defines it as a "microscopic organism consisting of a jelly-like mass, able to move by throwing out finger-like extensions of substance."

This definition is not too luminous, but if we think of the jelly fishes, with their long tentacles reaching everywhere for food, and then imagine a jelly fish so small that it can be seen only under a high power microscope lens we can get some idea of an ameba. It must live in a liquid something like sea water (such as our blood), it must find food within reach, and it must multiply like soap-bubbles indefinitely.

There may be as many kinds of amebae as there are of flowers or of animals. There is an ameba that infects the mouth; another that is found in the intestines, and every one of these kinds differs from the others in the

arrangement of the material within it, at its top and bottom. This gives us some idea of the amount of study that Ross, Castellani and other great scientists at home and abroad have already put into the investigation of tropical diseases.

Let me give you an introduction to two men of the Ross Institute. Sir Ronald Ross was born in 1857, the son of an army officer in India. He entered the army, became a lieutenant, was sent to India in medical service. There he became interested in the study of malaria, because the natives were dying of it by hundreds. In 1892, he began investigations on the transmission of the disease.

Long Search for Malaria Carrier

Long before this, in 1878, a French doctor named Laveran, who was studying malaria in Algiers, found the malarial amebae in the blood of his patients, but it was impossible to make these amebae live and grow outside the body or to inoculate them into a second patient. Soon, however, Sir Patrick Manson, an Englishman, suggested that the ever present mosquito might be the distributor of the disease but he could not prove it. So, in 1892, with very few tools but an abundance of tormenting mosquitoes, in the heat of India, where he could not even have a fan in the laboratory for fear of spoiling his dissections, Ronald Ross started investigations that lasted for five long years before he actually found one mosquito "with the goods."

Let him tell the story in his own words.

> I was tired, and what was the use? I must have examined the stomachs of a thousand mosquitoes by this time. But the Angel of Fate fortunately laid his hand on my head; and I saw a clear and almost perfectly circular outline before me of about 12 microns in diameter.
>
> The outline was much too sharp, the cell too small to be an ordinary stomach cell of a mosquito. I looked a little further. Here was another, and another exactly similar cell. The afternoon was hot and overcast; and I remember opening the diaphragm of the substage condenser of the microscope to admit more light and then changing the focus. *In each of these cells there was a cluster of small granules, black as jet.* . . .
>
> It was the malarial pigment. The next day the cells had grown larger; they were the malarial parasites, and it was not long before their life cycle from the stomach to the proboscis of the mosquito was followed. The secret of many years of research was revealed. The discovery had proved both the species of mosquito which carries the parasite, and the form and the position of the parasite within it. Thus, not only was the way opened at last for systematizing the best measures for combating the carrying of malaria by this species of mosquito, but scientists had the original source of the disease traced for the first time, the direct consequence being the facility for investigating the insidious developments of malaria in its many and often disguised forms.

This story of the finding of the malarial ameba in the stomach of the female mosquito is more important for peace and happiness than Peary's discovery of the Pole in the great frozen wastes of the north. Ross's field was only $\frac{1}{1000}$ of a millimeter in diameter, on the slide of his cracked and rusted microscope, in the heat of tropical India, but since that August day in 1897 millions of lives have been saved because of mosquito extermination.

Sir Ronald Ross, to whom the Institute was dedicated, has spent the best years of his life in the study of malaria.

In the Malay States alone, by draining the subsoil of water in which mosquitoes could lay their eggs, there have been 100,000 fewer deaths than there would otherwise surely have been. In Singapore, 35,000 persons have been saved in ten years. It was only because of this knowledge that the Panama Canal could be finished. Before that time the mortality among the workers had been so great as actually to stop all digging until Gorgas followed Ross with the sanitary drainage systems that have made Panama one of the healthiest places on the globe.

More Research to Find How Transmitted

But all this was not discovered in a minute. First it was necessary to identify the mosquito. By consulting the insects' "Who's Who" it was found that this particular kind of mosquito was the wife of a male anopheles, who was himself harmless. This female's character was bad, she

lurked in dark corners all day long and sallied forth with a vicious zum-zum after dark to attack the first animal or person that appeared.

If two weeks earlier she had bitten a person who was having an attack of malaria, she very likely sucked up some of his amebae with his hot blood, and in the next fourteen days these amebae underwent a transformation in her stomach and salivary glands that made them again harmful or infectious to other persons. These finished amebae she would then shoot into her next victim, who could catch the disease only in this way, and in three days he would come down with a malarial chill and fever.

Then Ross discovered that the chills and fever were caused by the destruction of the red cells in the patient's blood at the moment when the amebae would burst into other blood cells. In two more days blood cells would go through the same performance until large doses of quinine were able to paralyze or kill the amebae themselves, or more often until the patient died of malaria, poisoned by the germs.

All this study involved long months of experimentation with the mosquitoes that had bitten patients, to find when the mosquito became infected, how long the germs took to develop in her body, and how long it took after she bit a new victim for her germs to cause this patient's chill. Meanwhile this mosquito had to be kept under a net and properly fed; the voluntary patient upon whom the experiment was made had to be kept screened from other mosquitoes.

Ross Experimented on Himself

Ross first tried the experiment on himself, and he lived through the disease, but when Walter Reed later tried the experiment of getting yellow fever from another kind of mosquito he died to prove that the theory was correct.

Of course there have been material rewards to Ronald Ross for all this investigation. He has thirty-seven capital letters to add to his name, two Nobel prizes in the bank, an Institute named for him, and requests for lectures all the way from Ceylon to Patagonia, in order to convince planters and foresters that it is cheaper to kill mosquitoes than to have their laborers sick with malaria.

Patients from all tropical countries come to the institute for treatment under Dr. Aldo Castellani for ameboid diseases other than malaria. These diseases are caused by molds and many of them are more serious than leprosy and tuberculosis.

Dr. Castellani in 1925 accepted an appointment at Tulane University, New Orleans, but he came to the United States on the understanding that a certain portion of the year should be spent in his work at the Ross Institute.

An Italian, born in 1875, Dr. Castellani is an authority on tropical medicine. His book on that subject has gone through several editions, each time with careful revisions. It contains no less than 2,500 pages packed full of meat from cover to cover. It is called the bacteriologist's bible, and no wonder!

Dr. Castellani's Many Discoveries

Castellani's great work on trypanosomes, which he has proved to be the cause of sleeping sickness, was done in Uganda when he was 20 years old. This work won him recognition. After that he discovered the cause of yaws, a hideous skin disease common in the tropics. Then came the discovery that some of the diseases of the bronchial tubes and lungs, formerly mistaken for tuberculosis, were caused by a green mold. Eight other diseases he found caused by trypanosomes and carried by the tsetse fly.

This investigator also discovered the best tests and vaccines for typhoid fever, and he invented the triple vaccine which during the war prevented thousands of deaths from typhoid and typhus fevers and cholera. It was he who rediscovered emetin and put it on a scientific basis as a remedy for many amebic diseases.

In the old days when doctors could not discover the causes of disease they said piously that it was not the Lord's will to divulge such secrets to mortals, but men like Ross and Castellani and many others in America and in Europe have proved that there are three ways of transmitting disease that were not divulged to those who did not seek diligently enough to find them.

These three ways are by three f's—fingers, flies and food. By fingers is meant finger nails and dirty hands. By flies is meant all the gauzy winged insects and vermin that attack man or his food. By food is meant anything eaten raw on which germs or molds can find nourishment and grow.

Hail to the New Ross Institute and the men who are spending their days in making this world a fit home for mortals!

The Growing Child Eats Meat

By Elsie Fjelstad Radder

ONE serving of meat a day; a meat substitute once a day; a quart of milk a day—these foods will take care of the protein requirements of your child for growth and repair of tissues.

Meat is largely protein. Protein is the only food that is able to take care of the growth of the body and the rebuilding of tissues, which are constantly being torn down whether the body is at rest, asleep or at work. As long as a child is growing he needs protein, and after he has his growth he still needs protein, though a smaller amount will do.

Most Adults Eat Too Much Meat

Much has been said against the meat diet and for the vegetable diet. Much that has been said is important in the adult diet because most adults are extremely wasteful consumers of meat, our most expensive food. The adult has his growth and all he needs protein for is to keep the bones and muscles that he already has in good repair. A small serving of meat once a day will do this beautifully. More than that is not only an economic waste but also a severe strain on the body. The human machine has no way of storing protein as it does sugar, in the liver and all through the body in the form of fat. The amount of protein consumed in excess of that required is eliminated, and such elimination is irritating to the kidneys and other organs of the body. So there is reason enough to persuade father to change his ways and give son the biggest half of the T-bone.

Each adult needs a definite amount of protein based on his weight and the sort of work he does. In several instances the adult is justified in increasing the protein intake. The pregnant or nursing mother needs additional protein to meet the needs of the offspring; the person doing unaccustomed work will need more protein; and in a wasting disease, such as typhoid, a liberal protein diet is needed.

The component parts of proteins are amino-acids and it is in the form of amino-acids that the body utilizes proteins. There are eighteen or more amino-acids and some of them are better suited to the needs of the body than others. Therefore, proteins containing these are adequate proteins, while others may not be adequate owing to the number, quality or quantity of the amino-acids they contain.

Meat is an adequate protein. So is milk. Cheese, peanuts and soy beans are good substitutes. Gelatin is a protein, but a poor one. Wheat protein is fairly good but other cereal proteins are inferior. Proteins in peas and beans are poor. The proteins in certain foods may supplement each other, those of wheat bread and milk being more adequate together than alone. Of the meat proteins, those in brains, kidneys, liver and heart are the best for children.

Growing Child in Need of Protein

Since meat is the best source of protein, the growing child needs meat and a smaller amount of such foods as cheese and peanut butter each day. Milk is necessary in the diet more particularly for other reasons than for its protein content. A quart of milk a day is the first essential in the diet of any child under 16. After that come liberal amounts of fruit, vegetables and meat. The fruits and vegetables contain vitamins, which are growth factors, but they cannot produce growth.

Many persons as children had a strip of bacon to chew each day. Bacon fat is the most

easily assimilated of all fats but bacon will not take the place of meat muscle.

Extracts of meat, as broth, which are obtained by adding salt and cold water to the meat and cooking it slowly for a long time, may be given to the infant of 7 or 8 months, preferably on the advice of the attending physician. Shortly thereafter meat itself may be given—tender, well cooked and finely divided. Chicken, veal, lamb and beef are the meats to use and the kidneys, brains, liver and heart are best.

Since the question of how to cook without frying is so often uppermost, a few recipes are given:

LIVER LOAF

Soak 1½ pounds of beef liver in cold water; then place it in boiling salted water and cook it gently until tender. Cool and put it and a medium sized onion through the meat grinder. Add 1 teaspoonful of salt, 1 egg, 1 cupful of fine cracker crumbs and 1 cupful of hot water. Mix well. Form into a loaf and bake until brown. Strips of bacon may be placed over the top if desired.

BEEF EN CASSEROLE

Salt 1½ pounds of beef chuck or round, which has been wiped off with a wet cloth. Dust with a tablespoonful of flour. Heat 2 tablespoonfuls of beef or poultry drippings in a frying pan and brown the meat well on both sides. Place the meat in a casserole or leave it in the frying pan. Add one small onion, one half cup of carrots, one half cup of turnips, all chopped, and one cup of strained tomatoes. Cover closely and cook slowly from two to three hours until tender.

TONGUE À LA JARDINIERE

Boil a fresh beef tongue, or two calf tongues, an hour or until tender. Lay in a roaster upon a layer of diced vegetables—carrots, turnips, celery, small whole onions, tomatoes, peas and a very little potato. Pour in a cup of tomato juice and some of the liquor in which the tongue was boiled. Cook gently until very tender, about two hours. Remove the tongue and thicken the gravy. Serve.

CALF HEART

Wash a calf heart, removing the veins and arteries, and stuff it with a dressing made of bread crumbs, salt, egg, bacon fat, and chopped parsley, if desired. Sprinkle it with flour and place it in a roasting pan with bacon fat. When browned, add boiling water, cover closely and bake about two hours or until tender. Baste every little while.

BROILED SWEETBREADS

Soak sweetbreads in water twenty minutes and remove pipes and membranes. Cook in boiling salted water twenty minutes or until tender, adding lemon juice or vinegar. Plunge them into cold water to harden. Broil five minutes or until brown. They may also be broken into pieces and served in white sauce on toast, or combined with chicken, peas or mushrooms.

CALF BRAINS

Soak calf brains in enough cold water to cover them for an hour; then remove the membrane and parboil them in boiling salted water with 1 tablespoonful of vinegar for twenty minutes or until tender. Plunge them into cold water and drain. Separate into pieces. Use creamed or broil to brown.

HASH

Grind left-over roast beef, veal, lamb or chicken and add a double amount of diced cooked potato and one half teaspoonful of salt. Add a little onion juice, 3 tablespoonfuls of tomato juice and 2 tablespoonfuls of bacon fat to 1 cup of meat. Bake until brown. Diced cooked beets may be added, too.

CASSEROLE OF RICE AND MEAT

Steam the rice twenty minutes. Chop 2 cupfuls of cold cooked meat to each cup of rice. Add one-half teaspoonful salt, a little celery salt, onion juice, 2 tablespoonfuls of cracker crumbs, 1 egg and 1 cup of hot stock. Line a baking dish with rice, fill in the meat and cover it with rice. Steam forty minutes and serve with tomato sauce.

CREAMED CHICKEN WITH VEGETABLES

To finely chopped cooked chicken in a milk gravy, add mushrooms, peas, asparagus tips and egg yolks. Serve on toast.

Early Summer Hay-Fever

By R. P. Wodehouse

Low spear grass.

THE name hay-fever seems an unfortunate choice. It attempts to describe at once the cause and symptoms of a malady and fails in both, for, though grasses cause most of the early summer hay-fever, hay, as such, is never the cause; and fever is not a typical symptom of hay-fever. Nevertheless the name has endured the test of time; for more than a hundred years it has stood in the popular mind for a definite train of symptoms occurring in the spring and summer.

Grasses Are Chief Trouble-Makers

The cause of hay-fever is now known to be virtually always the pollen of different species of plants. One author, Duke, says that the plants producing the greatest amount of pollen over the longest season are those causing the greatest amount of hay-fever. This statement serves as a useful guide but lacks completeness, for the length of flowering time and the amount of pollen produced leave out of consideration several other equally important factors. In order really to be effective in hay-fever production pollen must be toxic, buoyant and produced in large quantities over long periods of time.

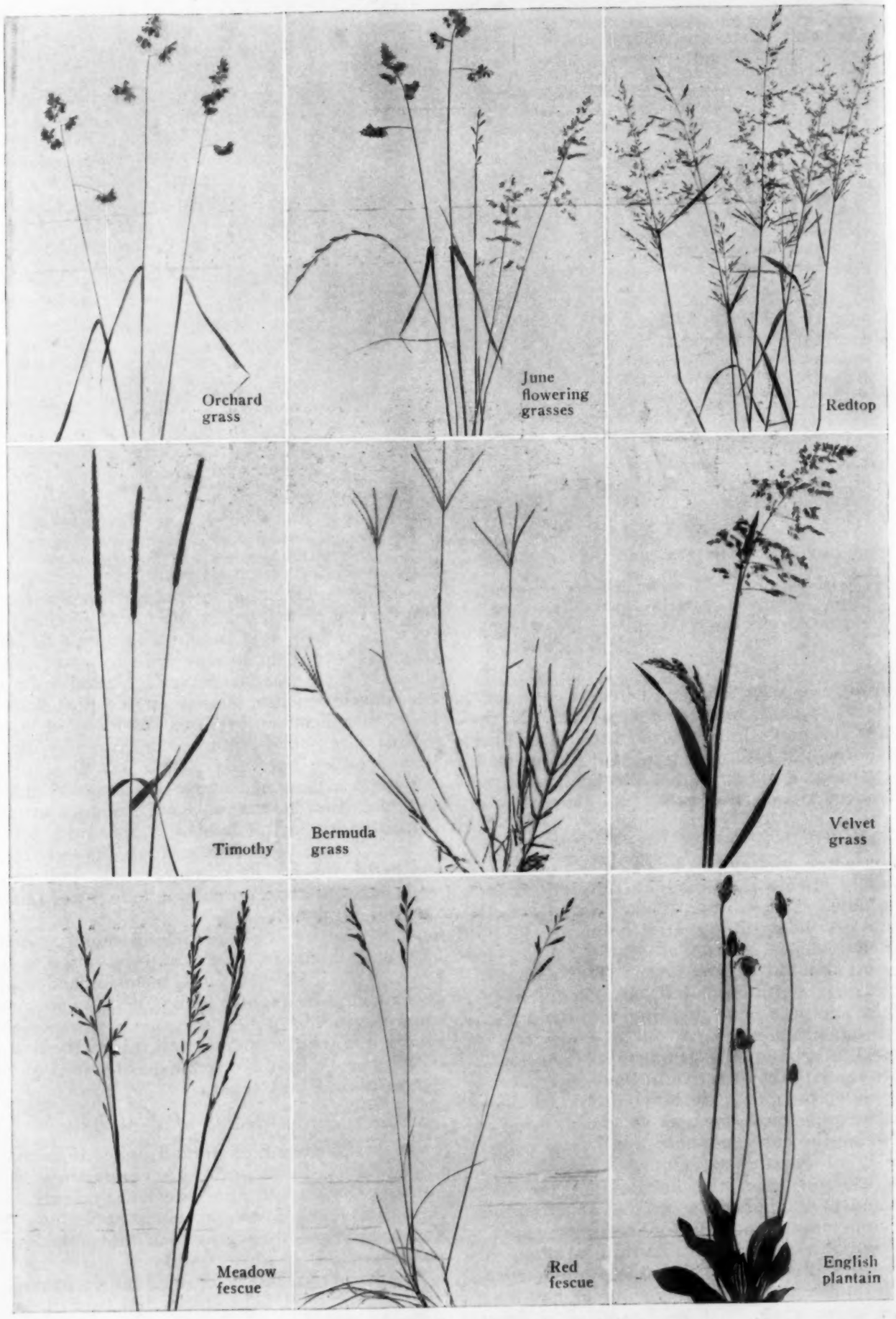
During the early summer months when there is a great burst of vegetation bewildering in number and kind, the flower that has been selected to symbolize the arrival of summer is the rose, chosen not only for its fragrant loveliness but also on account of its faithful reappearance in fields, woods, waysides and gardens. With its advent comes early summer hay-fever. It is unfortunate that so beautiful a flower should herald the approach of the hay-fever season and be associated in the minds of many of its victims with that malady; this type of hay-fever is even sometimes called "rose cold." Possibly the name was never intended to imply causal relationship, though in the past such a belief has been entertained by many.

Roses are poorly equipped to cause hay-fever; they produce but little pollen and this is not buoyant; instead it is adapted to insect transmission. Besides this, most of the double roses of cultivation are of hybrid origin and produce little or no viable pollen, so that it is only from the wild species and some single cultivated varieties that any appreciable amount of pollen may be obtained.

At the time when roses are blooming, associated with them are to be found many species of grass. Their flowers are inconspicuous and greenish but frequently shed pollen in enormous quantities. The pollen of grasses is especially adapted to wind dispersal and it is to the pollen of the grasses that is due the greater part of the early summer hay-fever.

Pollen Grains of Grasses

If moistened and examined under high magnification the pollen grains of grasses are seen to be perfectly smooth and spherical or nearly so; but each has a single small opening—the germinal pore—through which the pollen tube may grow. It is always situated at the top of a small mound, like a crater, and is provided with a small lid held suspended over it by a delicate membrane. No deviation from this


Orchard grass
June flowering grasses
Redtop
Timothy
Bermuda grass
Velvet grass
Meadow fescue
Red fescue
English plantain

form of pollen grain is found among the grasses except that considerable differences in size are encountered among the different species. Nor is this form of pollen grain found in any group of plants other than the grass family.

The flowers of grasses are small and inconspicuous and are regarded as objects of beauty only by specialists who peer into them with lenses. They are mostly green or greenish and so much less attractive than their more showy neighbors, the roses and many other beautiful flowers of the summer garden, that they are nearly always overlooked.

The sketch of a spikelet of two open florets of velvet grass shows that they lack entirely the conspicuous colored corolla and calyx familiar in the better known flowers, the place of these being taken by small green bracts; but the stamens are well developed. Each floret possesses three stamens appearing as small double sacs; two of those of the lower floret have emerged and remain suspended in position to shed their pollen, while the third may be seen about to emerge from the floret. The dark tip of the pistil, which is still within, may also be seen. Later it will protrude and be ready to receive pollen from another flower. In the upper floret, which is somewhat younger than the lower, only one stamen has emerged but the other two may be seen about to follow. At the base of the spikelet are two boat-shaped bracts—in the sketch separated from the rest of the spikelet for purposes of display—which enclose the florets both before and after pollination.

Spikelet of velvet grass.

During the flowering period of the grasses a number of florets open each day, sometimes with clocklike regularity. The bracts spread apart, the anthers emerge, open, shed their pollen, wither and die, and the green bracts close protectingly about the young seed. The process is repeated each day, in many species always at precisely the same time, a fresh set of flowers coming into play at each opening until all the florets in the spike have opened, shed their pollen and closed.

Low Spear Grass Ushers in Season

In the eastern states the first species to flower is the low spear grass or annual blue grass, generally starting in April but continuing to flower throughout the greater part of the summer. Low spear grass can generally be distinguished by its slender leaves of a yellowish green and its whitish flowering spikes. The plants generally sprawl flat on the ground and show no tendency to stand erect unless crowded by each other or by other species. It is abundant in lawns and, owing to frequent cutting, its flowering period is generally prolonged until late in summer when it dies out completely, leaving unsightly patches.

Pollen grains of Johnson and Bermuda grasses and plantain.

Apparently low spear grass contributes only little to hay-fever because of its small size, low form and the small amount of pollen produced. At any rate it usually starts to flower several weeks in advance of the first appearance of early summer hay-fever and hence cannot be regarded as a primary factor in its production.

A more important species is the sweet vernal grass, which follows soon after the first flowering of low spear grass. The flowers are borne in compact pointed spikes at the tops of erect stems. This species may usually be distinguished by its fragrant odor of cumarin, which can be detected upon drying or bruising the leaves. Sweet vernal grass was introduced from Europe as a meadow grass and has since become abundant throughout most of the northern part of North America. It dies soon after flowering and its place in the meadows is taken by some of the late flowering grasses.

June grass and orchard grass follow closely on the heels of sweet vernal grass. Both flower at about the same time in May and June and both are extremely abundant throughout the United States and most of Canada, except in very arid regions.

June Grass Is Common Lawn Grass

June grass is perhaps the commonest lawn grass. Though it is seldom permitted to flower in lawns, it has escaped from cultivation and is found everywhere. It flowers excessively in nearly all roadside ditches and waste places. When properly developed the plants stand about 2 feet high and are distinguished by their soft, spreading, bluish panicles. This species is the favorite pasture grass throughout the more humid regions and is generally cultivated under the name of blue, or Kentucky blue, grass and is one of the most valuable and universally distributed grasses of the United States.

Orchard grass is about twice as tall as June grass and is coarse and stiff. It cannot be grown in lawns because it has a tendency to form

tussocks. As a consequence of this habit it is sometimes called bunch grass. The flowering panicle stands erect and when mature its branches stand almost straight out from the central axis; the lower branch is generally much larger than the others and, standing off abruptly from the central axis, causes the inflorescence to bear a remote resemblance to the foot of a cock, the enlarged lower side branch representing the spur; hence the name cock's foot grass, by which it is frequently known, particularly in England.

Both June grass and orchard grass start to flower toward the end of May and continue through most of June, shedding large quantities of light air borne pollen.

Closely following these come redtop and timothy, which begin to flower late in June and continue to flower through most of July. Both are cultivated in humid regions. Redtop is a valuable meadow and pasture grass frequently succeeding sweet vernal grass in moist meadows. It is low with soft spreading panicles, somewhat resembling June grass, from which it can easily be distinguished by its later flowering period and the purple reddish color developed by its panicles as they approach maturity. Though redtop resembles June grass in outward appearance, the two are seldom found together, because June grass thrives only in the presence of lime, a condition unfavorable to the best development of redtop.

Timothy is tall and erect, about twice the height of redtop. Each stem bears at its top a straight, compact, catkin-like inflorescence. It is the standard hay grass throughout the more humid parts of the United States. When made into hay it is cut at the height of its flowering season, while shedding an abundance of light air borne pollen. In many regions in which timothy is cultivated it covers large tracts of land, and in these regions causes much of the hay-fever occurring during the latter part of June and the earlier part of July. However, it is much less abundant in waste places, vacant lots, neglected fields and along roadsides than are the other species, and therefore is less productive of hay-fever among suburban and city dwellers.

Johnson grass.

Johnson grass growing between palms.

Though there are undoubtedly many other species of grass that contribute to the production of early summer hay-fever, there is no doubt that the five species—sweet vernal, June grass, orchard grass, timothy and redtop—are responsible for the greater part of the early summer hay-fever. It is significant that hay-fever of this type in the northeastern United States stops with the cessation of flowering of timothy and redtop; consequently there is little need to consider such grasses as barnyard grass, crab grass, squirreltail grass, the witch grasses and innumerable others that flower subsequently to this time.

There are, however, several others that should be mentioned; though a good deal less general in distribution and less abundant than the five species of hay-fever grass mentioned above, they should be regarded as contributary factors and sometimes as primary causes of hay-fever.

For example, meadow fescue is frequently found associated with June grass; it flowers about the same time. Red fescue, flowering a little later, is distinguished by its dark bluish green wiry leaves, forming basal rosettes in dry, sandy or impoverished soils. Velvet grass with its soft velvety leaves and stems and purplish flower panicles flowers in moist meadows and roadside ditches. Tall oat grass with its graceful plumes forms a conspicuous element of our roadside vegetation in July. Meadow foxtail, an old-fashioned grass formerly cultivated widely, now occurs only in isolated patches where it has been able to hold its own against its more hardy competitors. It is similar and closely related to timothy but can be distinguished from it by its early period of flowering.

In the warmer and more arid regions of the United States the hay-fever sufferer has other species to contend with. Possibly the worst of these are Bermuda grass and Johnson grass. The former has a range extending from coast to coast in the southern part of the country, and the latter a range but little less extensive. Both were introduced from the Mediterranean region as forage grasses. Both are drought resistant and, once established, can scarcely be eradicated.

Of the two, Bermuda grass is the more important because its pollen is the lighter and more easily dispersed by wind currents and it has the longest flowering period of all the grasses, flowering from April to September. When there is insufficient moisture it withers and dies to the ground but springs up again as soon as there is rain, and bursts into flower.

Johnson grass is very different; the plants are tall and stout, usually reaching a height of 4 or 5 feet or sometimes much more. The flowers are borne in large open panicles but shed a disproportionately small amount of pollen of large and heavy grains. But what the pollen lacks in buoyancy and amount is largely compensated for by the height and numerousness of the plants. In some parts of the Southwest it is a pernicious weed and has become so abundant that it has rendered farming unprofitable. In such localities it is said to be the worst hay-fever weed that the sufferer encounters.

Orchard grass in masses.

Farther west are other kinds of grass. Hall, in his catalogue of California plants, lists about seventy-five species that are to be regarded as, at least, contributary causes of hay-fever. Of these, twenty-three are of primary importance. Besides these of the Pacific coast, there are many species in the Great Plains region deserving attention; but altogether these are so numerous that any adequate treatment of them is beyond the scope of this discussion. The reader who wishes to go more deeply into the subject is referred to Hall's list and other bulletins of the U. S. Department of Agriculture and bulletins issued by the various state departments.

Though the grasses are responsible for by far the greater part of early summer hay-fever there are several weeds that occasionally play an important part. For example, English plantain, a common weed of door yards, vacant lots and meadows, is frequently found associated with sweet vernal grass. It starts to flower at about the same time and continues, shedding large quantities of light air borne pollen well into July.

Of somewhat less importance are the several species of dock, as the yellow or curly dock and sheep sorrel. Besides these there are a number of plants characteristic of the Great Plains and of semiarid regions; as, for example, Russian thistle, several kinds of salt bush, pigweeds and various others that begin to flower in the early summer but reach their maximum development during the latter part of the summer and, therefore, more properly belong to the late summer group.

From a study of the hay-fever plants the certain conclusion has been reached that the many beautiful flowers which, like the rose, grace the gardens and countryside with their beauty and fragrance are innocent of harm to the hay-fever sufferer; instead the many grasses and weeds flourishing in vacant lots, roadside ditches, meadows and fields are responsible for early summer hay-fever. These always have inconspicuous flowers that shed throughout the early part of the summer large quantities of pollen, which is so light that it is borne considerable distances in the air. The hay-fever sufferer must penetrate deep into the woods if he would escape these plants, for it is characteristic of the hay-fever grasses and weeds that only in open and sunny spaces do they thrive and produce their toxic pollen.

TUBERCULOUS PHYSICIANS

and their Contributions

By J. A. Myers

III. Xavier Bichat

XAVIER BICHAT, the son of a physician, was born in 1771. During his childhood days his father told him much about medicine, and when the time came for him to study medicine he went to Lyons to get the necessary training. He had become greatly interested in physics and mathematics and while in medicine he applied his knowledge of these subjects to the structure of the human body. The French revolution resulted in the closing of the schools in Lyons and Bichat then went to Paris, where he entered the school of Desault.

Desault was so impressed by his new student that he immediately took Bichat to his home and made him his assistant. When Desault died in 1895 the care of his widow and son, as well as his unfinished work, was left to Bichat. Here we see the manifestation of a remarkable spirit. Bichat abandoned his own researches in which he was deeply immersed, took up the work of Desault and brought to a close one of his unfinished volumes.

Up to that time anatomy was taught in such a manner as to be somewhat repulsive. Bichat entered this field with great fervor, casting aside the old time methods and substituting actual observation and experiment. He devoted himself diligently to the work during the day and far into the night, when he carefully and accurately described what he had seen. Physicians and pupils began to gather around him. Private courses by him were demanded. With Corvisart, he organized a great French society and in 1800 he published his first book on anatomy. The same year he brought forth another book even greater than the first involving the results of his physiologic researches on both the living and the dead. At the age of 29 he was appointed adjunct physician to the Hôtel Dieu. It is said that during a single winter he made between 600 and 700 postmortem examinations.

In 1801, Bichat came forth with another book dealing with pathologic anatomy. He was interested not only in anatomy but also in diagnosis and therapy. Indeed it was he who conceived the idea of dividing certain conditions of the chest formerly grouped under one name into pleuritis, pneumonia and bronchitis.

He had worked desperately hard all his life and now he rushed forth with the same dangerous fervor into the preparation of a series of volumes on descriptive and pathologic anatomy. Long ere this was finished his health broke. He began to have pulmonary hemorrhages. In spite of this, during remissions, he continued to plunge into his work with the same ardor as before. One day while in his laboratory he had an attack of dizziness and on leaving the room he fell on the stairs striking his head violently. In addition to tuberculosis this proved too much and a few days later he died.

Bichat had laid his life on the altar of science, for when he died he did not have enough money to bury him; but he left behind him that which is far greater than money. His friends were many, and the famous Corvisart, who was to play such an important rôle in the life of Laënnec and who became Napoleon's personal physician, wrote to Napoleon as follows: "Bichat has just died at the age of 30; he has fallen upon a field of battle which also calls for courage, and which counts many a victim; he has broadened the science of medicine; no one at his age has done so many things and done them so well." Upon receiving this information Napoleon ordered a marble placed in the Hôtel Dieu in memory of Desault and Bichat.

HYGEIA
THE HEALTH MAGAZINE
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Plain Facts about Health and Disease

THE PERENNIAL NATURE OF FOLLY

THAT eminent American philosopher P. T. Barnum said that there is born in this country one sucker every minute. Dr. Joseph Jastrow, eminent psychologist, improved on the statement by saying that there was a sucker born every minute and a crook born every hour to take care of sixty suckers. The ratio has not changed since the beginning of time and is not likely to change in the future even with the birth of many eugenic babies.

In his "Introduction to the History of Science," George Sarton expresses beautifully this relationship of folly to progress. "The historian of science cannot devote much attention to the study of superstition and magic, that is, of unreason, because this does not help him very much to understand human progress. Magic is essentially unprogressive and conservative; science is essentially progressive; the former goes backward; the latter, forward. We cannot possibly deal with both movements at once, except to indicate their constant strife, and even that is not very instructive, because that strife has hardly varied throughout the ages. Human folly being at once unprogressive, unchangeable and unlimited, its study is a hopeless undertaking. There cannot be much incentive to encompass that which is indefinite and to investigate the history of something which did not develop."

The human being is naturally credulous, particularly in those fields in which he does not have accurate knowledge and in which therefore he is utterly without understanding. Unfortunately education in the past was devoted primarily to a study of reading, writing, arithmetic and geography which, while of the greatest practical value, nevertheless did not insure to the child good health. Good health is the one attribute of life that may be considered absolutely essential to some degree of happiness. Nowadays, instead of spending his time largely in learning that the exports of Sardinia are not sardines, the child finds out that orange juice added to milk supplies a necessary vitamin, that potatoes are rich in carbohydrates or starches and sugars, that milk is one of the best foods, that cleanliness, while next to godliness, is also an aid to longevity.

MEASURING THE PULSE RATE

ABOUT the beginning of the Christian era, Galen and other investigators of the human body were recording their observations of the pulse and of its meaning in relationship to the condition of the human body. Democritus, about 420 B. C., investigated the action of the pulse. The Hippocratic texts, mentioning the pulse and the importance of the movements, were not available until 340 B. C. The famous Papyrus Ebers, among the earliest of Egyptian medical manuscripts, also mentions pulse action. In the last of the fourth century B. C., Herophilos in Alexandria, Egypt, under Ptolemy the First, pointed out that the pulse rate varies in different diseases and that the strength of the pulse indicates that of the heart. Rufus of Ephesus, who flourished under the emperor Trajan, observed that the beat of the heart and the pulse rate correspond with its contraction. The Chinese physician Huang Fu wrote about the pulse in the second century, and the Arabian physicians of the ninth and tenth centuries were also familiar with its manifestations.

Until 100 years ago, however, little attention was paid to the rate of the pulse, but a great deal was said about whether it was full or soft or possessed some other quality in which distinction is difficult and judgment hazardous.

Galileo, credited with discovering the laws of the pendulum while watching a swinging chandelier, coordinated the swinging of the pendulum with the beat of the pulse and worked out a formula for the relation of the pulse rate to the length of the pendulum.

One hundred years later, in 1720, an Englishman, Sir John Floyer, used a watch that ran sixty seconds and carefully recorded the rate of the pulse beat. Only since the early part of the nineteenth century have sufficiently accurate observations been made to show the importance of the relations that exist between the heart beat and different diseases. It is apparent that any one who wants an account of the pulse beat can take it when the person is in a sitting, standing or reclining position. It is obviously of importance, however, to know also the rate and manner of the action of the heart when the person is moving about.

Dr. E. P. Boas of the Montefiore hospital in New York recently developed an instrument that will record automatically the number of heart beats over long periods of time even in a person who is indulging in exercise, running, walking, coughing, laughing or moving about in any other manner. In diseases such as exophthalmic goiter the rate of the heart may be very rapid. In other diseases associated with weakness of the heart the rate may be slow.

Much of the progress in modern science is dependent on the perfection of instruments to aid the physician in making an accurate observation. Only by accurate scientific observation has medical science been able to develop to the point that it now occupies. With such knowledge available, how ridiculous to imagine for a moment that all disease is due to a single cause, that every organ and tissue of the body is controlled by a single manipulation!

CLIMATE AND HEALTH

FROM the beginning of scientific observations regarding human diseases much attention has been paid to the relationship of climate to the incidence of disease. Today only those addicted to strange notions of immunity are likely to urge that the climatic factor is negligible. The well established view that exposure to cold and wet is likely to cause a cold is today supported by much scientific observation.

Sir Leonard Rogers, one of the leading authorities of the world on tropical diseases, recently spoke at Oxford University on the ability to forecast the occurrence of epidemics in India in relationship to changes in the climate. It is now well recognized that one of the important factors in the length of the period that may intervene between epidemics is the accumulation of people in the intervening time who have not developed resistance to the disease within their own bodies, by inheritance or by other mechanisms. In other words, a great epidemic passing over a community kills off the majority of those who are without resistance and does not recur until a new group without resistance develops.

This cannot, however, be the only factor involved. If it were, epidemics would occur at regular intervals instead of irregularly, as is more often the case. In India the government has for many years kept accurate statistics concerning rainfall, humidity and temperature in different portions of the country. Sir Leonard Rogers finds a definite relationship between the development of tuberculosis and of leprosy and the blowing of rain bearing winds in Indian communities.

In the same way he finds the incidence of pneumonia much less in those portions that have mild winters and uniform climate. The highest occurrence of pneumonia takes place in the area of the lowest rainfall. He explains the incidence of pneumonia by the fact that the poor Indian lives in a one-room hut and goes out in the cold of the early morning to wash himself in the open air. He allows his cotton loin cloth to dry on him. The dryness of the air leads to rapid evaporation with great cooling. These are the conditions most favorable to produce chills.

Most people have constantly about them the germs of pneumonia and of the common cold. The development of diseases from these germs occurs when the person's resistance is lowered, as it is in the presence of chills. Indeed, the same thing happens in the dry climate of Egypt when persons drive out in the heat of the day to see the pyramids and other objects of interest and return after sundown, at a time when there is a rapid fall in the temperature and when they are likely to be subject to chill.

In her book, "Mother India," Katherine Mayo describes in a startling manner the terrible hygienic conditions associated with the religious pilgrimages of India. To these pilgrimages largely Sir Leonard Rogers looks for a reason for the terrific mortality from cholera that occurs in that country. The disease still carries off an average of 375,000 persons a year after an illness lasting only a few hours. Sir Leonard associates it with three immediate factors: (1) deficient rainfall, (2) unfavorable humidity and (3) the occurrence of exceptionally large pilgrimages, involving the passage of huge crowds through areas in which cholera is con-

stantly present. In 1879, about 50,000 pilgrims attended a fair in the Punjab district, and on their return died at the rate of twenty per mile, at the same time causing tremendous epidemics in the regions over which they passed.

A chart on cholera epidemics in relationship to the weather indicates definitely that they occur each time the rainfall has been deficient, when the humidity is exceptionally high and when the pilgrims are en route.

PREVENTION OF SMALLPOX

IN every state of the Union laws to enforce vaccination must constantly be protected against repeal. Statistics showing the mortality from this disease and the pecuniary value of vaccination are beyond all possibility of controversy. Any person who attacks the protective value of this vaccination is homo stultissimus, fanatic or deliberate promoter of disease.

Smallpox vaccine is produced and prepared under perfect conditions of cleanliness and asepsis, and contamination can occur only by the most gross carelessness of the vaccinator. The technic of the inoculation has been brought to the greatest perfection. Whether the vaccine is administered by puncture or by placing it on a small skin scratch the ensuing scar is minute, unless great negligence occurs in the after treatment of the resulting sore. The arm is unquestionably the place of choice for vaccination. Vaccination on the leg is more likely to cause a greater amount of inflammation, considerable gland disturbance in the groin, and more disability; also the sore is likely to take longer in healing.

The physician or surgeon should always see again the person whom he has inoculated, to decide on the character of the "take," and the patient must understand that an acutely inflamed area and assocated enlarged glands or a tedious healing of the ulcer necessitates a visit to his physician. The old shield used to protect the sore was a source of constant irritation and it increased local inflammation. In fact, any shield is likely to cause harm by impairing the circulation surrounding the area of inoculation. When the vaccination is done by the puncture method no protection whatever is required, and when done by the superficial skin method the simplest protection with porous gauze is entirely sufficient. When this gauze is retained by adhesive straps the dressing should be frequently changed.

The assertion is frequently made that physicians profit by vaccination flurries, though it is a fact that there is no medical or surgical service so poorly recompensed as is vaccination against smallpox. Every physician does this work at time and labor loss.

A recent epidemic of smallpox in Connecticut started January 1 in Middletown, twenty-five miles from New Haven. It spread through unvaccinated persons to fourteen other cities and towns in Connecticut and two towns in Massachusetts. The number of cases reported in Connecticut in the first six weeks of the year was 130, most of which occurred in or near Middletown.

Of the 186,000 inhabitants of New Haven more than 100,000 were vaccinated in a short space of time. The public responded to the many years of health education. In spite of the extensive exposure to the disease only three cases occurred in the city and the cost to New Haven was only about $7,000.

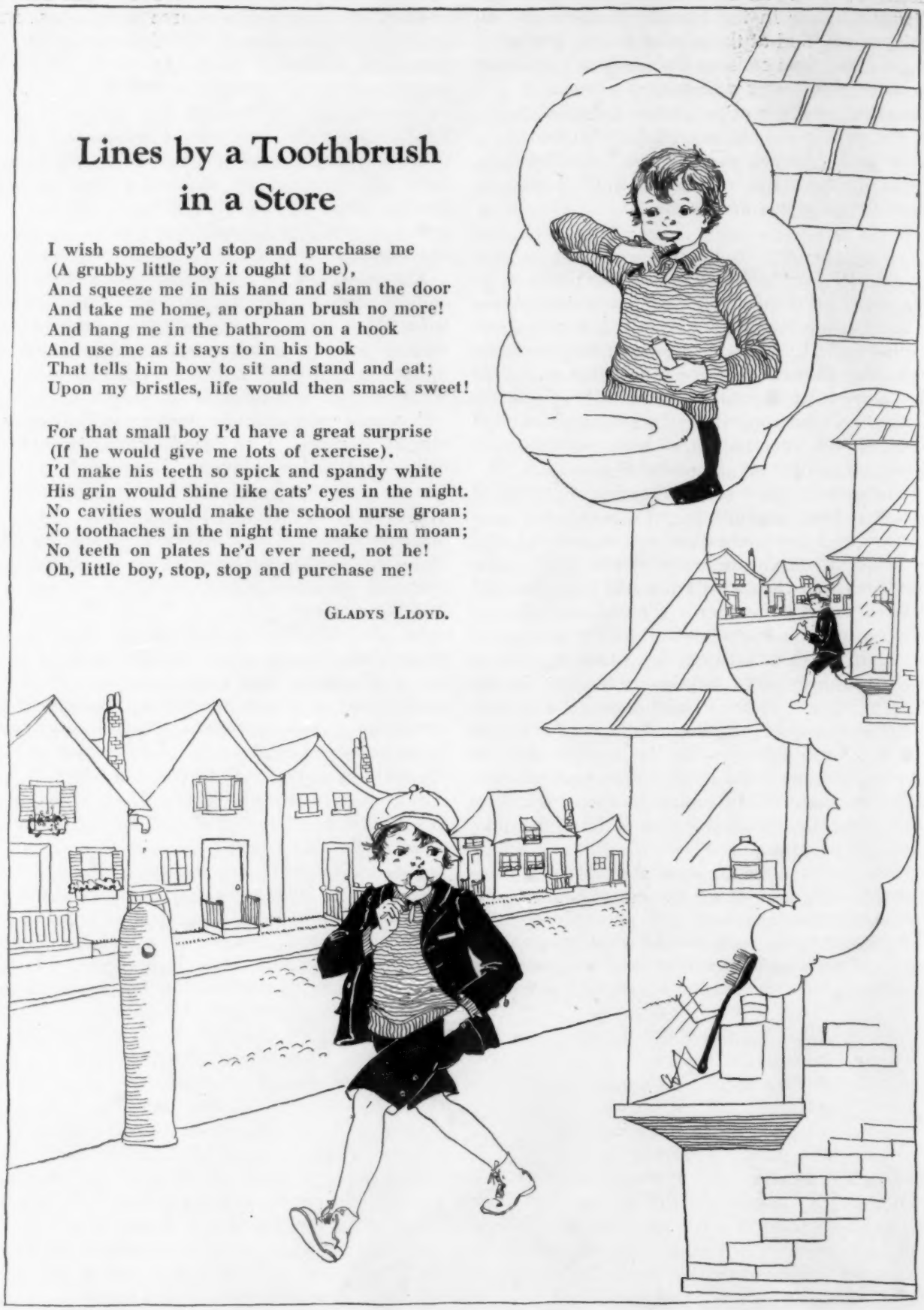
For nearly twenty years New Haven has required vaccination of all children entering the public schools. During the last five years this regulation has been effectively enforced. In the beginning of 1928 probably more than 99 per cent of all children in the public schools had been vaccinated. Since 1923 all students entering Yale University have been required to present evidence of vaccination against smallpox.

Lines by a Toothbrush in a Store

I wish somebody'd stop and purchase me
(A grubby little boy it ought to be),
And squeeze me in his hand and slam the door
And take me home, an orphan brush no more!
And hang me in the bathroom on a hook
And use me as it says to in his book
That tells him how to sit and stand and eat;
Upon my bristles, life would then smack sweet!

For that small boy I'd have a great surprise
(If he would give me lots of exercise).
I'd make his teeth so spick and spandy white
His grin would shine like cats' eyes in the night.
No cavities would make the school nurse groan;
No toothaches in the night time make him moan;
No teeth on plates he'd ever need, not he!
Oh, little boy, stop, stop and purchase me!

GLADYS LLOYD.



"JUNIOR"

JUNIOR AND MR, GERM

BY

HOWARD W, HAGGARD

"MR, GERM"

CHAPTER XI

Junior Reaches Baby Sister's Face

MR. HAROLD AUGUSTUS GERM was sitting on the hillside just a little way from Junior. "How did you get here?" asked Junior. Mr. Germ smiled and said: "Off the fly's foot. My journey is ended. This is the place I wanted to reach."

"Where are we?" asked Junior.

"On your baby sister's face," replied Mr. Germ.

"My baby sister's face!" cried Junior. "No! No!" Then he looked around. Mr. Germ might be right after all. Many strange things had happened to Junior since he had become small. This steep, rough hillside might be baby sister's face.

Yes, Mr. Germ was right. It was baby sister's face. These small trees to which Junior was holding to keep from falling were the tiny downy hairs that grew on baby sister's face.

The hollow that Junior thought was a deep ditch in the red dirt of the hillside was baby sister's mouth. Sister started to smile and her mouth was coming open now. Junior could see her teeth. They looked to him as big as stone monuments. As sister opened her mouth the skin on her face moved. Junior felt what he had thought was the hillside move under his feet. He almost lost his balance and fell off.

At last Junior had reached baby sister's face. That is the place he had wanted to reach ever since he saw Fido put Mr. Germ's children there.

Junior remembered, too, how he had reached baby sister's face. The fly had carried him there. He was ashamed of himself for being angry with the fly and sticking it in the back with the splinter of wood.

Now that he had reached sister's face he must get rid of the germs that were there. Junior looked around to find the germs. For a moment he had mistaken them for round rocks on the hillside. Now he saw one of them move and he knew they were germs. He saw Mr. Germ's fourth cousin, too. He was near the corner of baby sister's mouth wriggling back and forth almost ready to go in.

Junior saw something besides that made him happy. The germ that he had thought sister had pushed into her mouth with her hand was not inside after all. It was stuck on her lip.

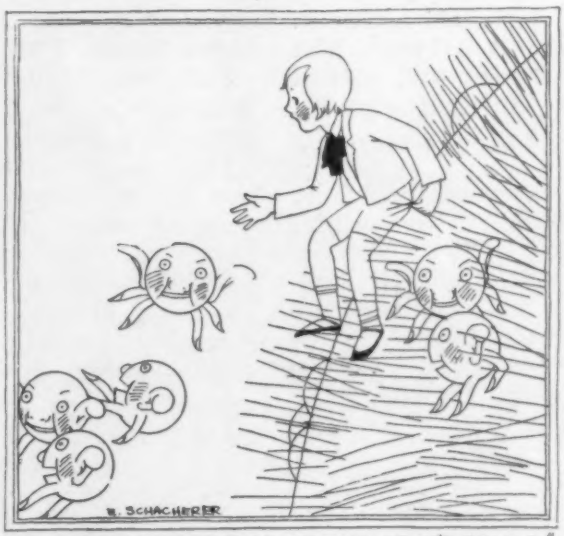
All Mr. Germ's children were looking about as if they were trying to find something. Mr. Harold Augustus Germ himself was right beside Junior. He was looking about as if he too were trying to find something.

"What are the germs all looking for?" asked Junior.

Mr. Germ smiled at Junior and said: "We are hunting for a little cut or scratch in which we can begin our dinner."

Mr. Germ started to look about again. He looked near the place where Junior was standing. What he saw there seemed to please Mr. Germ, for he smiled still more. He began slowly to wriggle, his short arms and short legs moving toward Junior. He began to smack his lips too.

All about him Junior heard the other germs smacking their lips. They were looking in the direction in which Mr. Germ was looking and were moving toward Junior.



"HE THREW THE GERMS AS FAR AS HE COULD"

Junior looked down at baby sister's face. What he saw there made him even more sorry that he had tried to get even with the fly for biting him on the end of the nose.

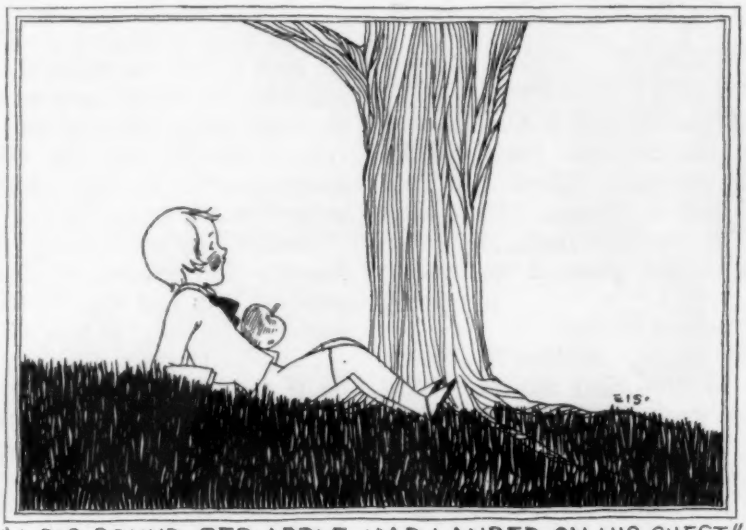
There was a tiny scratch on baby sister's face. Junior knew how that scratch had been made. When he was thrown off the fly's back he had carried in his hand the splinter with which he had stuck the fly in the back. The splinter had scratched baby sister's face. All Mr. Germ's children were

creeping slowly toward the scratch and some had almost reached it.

Oh, how Junior did wish he had not been angry at the fly! It was all his own fault.

Junior must get those germs off baby sister's face quickly. If he did not they would reach the scratch. Once there, they would raise children more rapidly than Junior could throw them off. He could not tell baby sister to wash her face or put iodine in the cut to keep the germ out. She could not hear him even when he called as loud as he was able. She could not see him either; she could not have seen him if he had walked across her eye.

There was only one thing Junior could do and that was to pick the germs up and throw them one at a time from baby sister's face.



"A BIG, ROUND, RED APPLE HAD LANDED ON HIS CHEST"

Junior reached for the nearest germ. With one hand he held on to the tiny downy hairs; with the other he picked up the germ and threw it as far as he could. One germ after another he picked up and threw in the same way. Finally there remained only Mr. Germ and his fourth cousin. Junior picked up Mr. Germ and started to throw him as hard and as far as he could. As he brought his hand forward his feet slipped and he fell. Mr. Germ dropped out of his hand and landed on the back of Junior's neck. Mr. Germ held on tightly and stayed there.

Junior did not pick Mr. Germ off his neck. He had seen something as he fell that made him forget all about Mr. Germ. He had looked toward baby sister's mouth and had seen Mr. Germ's fourth cousin just slipping into baby sister's mouth.

Junior must get that fourth cousin before he got entirely into sister's mouth. To reach him Junior must walk across baby sister's lower lip.

The surface of the lip was wet and slippery. There were no tiny downy hairs to hold on. Junior was afraid he would fall off. On his hands and knees he crept toward Mr. Germ's fourth cousin. He almost reached it when baby sister's mouth started to open. Junior felt himself slipping just as he reached for the germ. He had hold of him now. With a big shove he sent him spinning to the ground below.

Baby sister's mouth opened wider and wider. Junior fell on his face on the slippery surface of the lip and tried to hold on.

And then baby sister sneezed! Junior, with Mr. Germ still on his neck, went sailing out through the air. Baby sister had blown her brother clear across the yard.

Down, down went Junior and Mr. Germ toward the ground. They hit the ground with a crash.

For a moment everything was black about Junior. Then he opened his eyes. He was on his back, and what was more he was now as big as usual. The apple tree was over him, the short grass was all about him, and across the yard he could see the big white house in which he lived.

There was something heavy on his chest. Junior looked to see what it was. At the first glance it looked like Mr. H. A. Germ. Junior sat up with a start, and then he laughed. It was a big round apple that had fallen off the tree and landed on his chest and had awakened him.

"Whew!" said Junior. "Whew! That frightened me. I wonder if that Mr. Germ is still on the back of my neck." Junior put his hand there but could not find him. Then he laughed again. "Of course I could not feel him even if he was there. I forgot I was big again."

Just then Junior's mother called him from the porch of the big white house. He pulled himself up sleepily.

"Junior," she called, "come in and wash your face before dinner."

Junior got up slowly and walked toward the house.

"Mother," he called. "I'm coming in to wash. I'm going to wash with hot water and lots of soap. And I want to wash my teeth, too, Mother, and put iodine on a cut in my hand."

THE END

Fourth Grade Children in Minot, N. D., Write Appreciation of "Mr. Germ" Story

Appreciates Story of Mr. Germ

DEAR HYGEIA,—

Miss Waldron is reading Junior and Mr. Germ. She reads chapter by chapter. I think it is very funny and cannot wait till the story is finished. I wish you would send it two times a week. It is very interesting. I appreciate you writing the story of Mr. Germ. It will teach some people to wash up and if they don't the Germs will get them. And the Germs will get you if you don't watch out. Your friend,

Eldon Edin

Makes Robert Wash

DEAR HYGEIA,—

I have appreciated the story of Junior and Mr. Germ a lot. I wish it would come every day. I sure wish the germs would not get on his baby sister's face. Will Junior get big again? I will tell you why I like this story. It tells you about health. It makes me wash behind my ears. We laugh when Miss Waldron reads it to us. I wish all Mr. Germ's children would get killed and himself.

Your friend,

Robert Schmidt

Wants Hygeia Oftener

DEAR HYGEIA,—

I like the story of Junior and Mr. Germ very, very much. I can hardly wait for Miss Waldron to read the story. I am in the fourth grade. I wish the HYGEIA would come more often. The next chapter tells how Germs got on baby sister's face. I think that the story of Junior and Mr. Germ will teach boys and girls to wash very clean. Miss Waldron reads us the story every time it comes. I like the story because it is so interesting. Every one in my room likes the story. I will be glad when the new HYGEIA comes. Another story, Miss Waldron is reading in HYGEIA is Young Prince Healthy Boy.

Your friend,

Thola Ashbaugh.

Thinks Mr. Germ Funny

DEAR HYGEIA,—

I am in the fourth grade. I am going to tell you how much I appreciate the HYGEIA magazine, especially the story of Junior and Mr. Germ and the poem of Young Prince Healthy Boy. Miss Waldron, my teacher, reads it to us every Friday at health period. I surely enjoy it and wish it would come oftener. I should think you would enjoy writing it and thinking how Mr. Germ weeps and cries at being left behind by Junior's dog Fido. Does Junior ever get off the blade of grass? The next chapter we read is how the germs got on baby sister's face. I thought it was funny when Mr. Germ thought of soap and water.

Your friend,

Mary Bradford

Cannot Wait for Hygeia

DEAR HYGEIA,—

I like the story of Junior and Mr. Germ very, very much. It seems that I can hardly wait for Miss Waldron, my teacher, to read. She only reads it some Fridays for health. I can hardly wait until the next magazine is put out. I am in the fourth grade. I certainly appreciate the story of Junior and Mr. Germ. I certainly think it will teach some children to wash behind their ears. Your friend,

Alice Lusk

Hopes Junior Gets Big

DEAR HYGEIA,—

I certainly am enjoying the HYGEIA magazine. I get so tired of waiting for the magazine to come. Miss Waldron always reads Young Prince Healthy Boy to us before she reads Junior and Mr. Germ. The story certainly is a good health lesson. It teaches us to keep clean if we don't want Mr. Harold Augustus Germ on us like his children got on Junior's baby sister. I hope Junior gets off of the blade of grass and gets big. Your friend,

Katherine Greer

New Books *on* Health

REVIEWS OF INTEREST TO GENERAL READER, PARENT AND TEACHER

APPENDICITIS

By Thew Wright, M.D. Price, $2.00. Pp. 129. Allen Ross & Company, New York.

THE degree to which the modern physician is able and willing to take the patient into his confidence is rather amazingly illustrated by this little book on "Appendicitis." In it the author tells, in as nontechnical language as possible, a good deal about the cause, course and cure of this disease, which still takes an appalling and annually increasing toll of life, because much of it is unchecked and inexpertly treated; and this despite improved surgical technic. Yet, "no one should die from appendicitis and every death from the disease is due to neglect either on the part of the patient, or, in the case of children, the parents or the attending physician." "If all the cases of appendicitis were operated upon during the first few hours of the attack, there would be scarcely any deaths; for it is not simple inflammation of the appendix that kills, but the complications of the disease due to the spread of the inflammation from the appendix to the peritoneum and elsewhere."

The symptoms, as is well brought out in the book, are beneficial rather than detrimental to the patient. The pain and rigidity, the nausea and vomiting, protect an injured part. The stomach has been likened to an alarm bell, which gives warning of trouble and it would be as wise to pour water on the alarm bell that announced the fire instead of pouring it upon the fire itself, as it is to treat the stomach for the ills of which its refusal to work is but the warning signal.

The process by which nature endeavors to antagonize the spread of the disease, the formation of adhesions, will in the majority of instances limit to the right lower quadrant the infection from even the most severely inflamed appendix. Often the omentum will wrap itself around an inflamed appendix and completely wall it off, even from the adjacent intestines.

The infection is spread throughout the peritoneal cavity, chiefly by the movement of the intestines, peristalsis. "If through ignorance, we neglect nature's warning and, by the taking of food or cathartics, stir up the action of the intestines, we are acting to defeat her efforts, and are doing the worst thing we could possibly do in appendicitis. In fact, in but a small percentage of cases does the appendix rupture before nature has walled it off, if no food or cathartics have been taken after the onset of the disease."

Drawings by Ethel Schacherer from "Our Baby's First Seven Years."

"Although nature succeeds in many cases in thus limiting the disease, she often fails; and it is never safe in any given case to presume upon her success." "Those whose experience is the largest and whose judgment is the best urge immediate operation as soon as the diagnosis of appendicitis is made, even though the attack seems to be a mild one. Everything is to be gained and nothing to be lost by such a procedure. An operation performed in the early hours of the attack is the simplest it can ever be in that patient; it is attended by the least possible risk, is followed by the least possible discomfort, and the shortest possible hospital confinement; it cures the disease, removes the almost certainty of another attack which would exist in case no operation were done; and eliminates the danger of serious complications which so often follow delay."

Could the knowledge contained in this little book become common property of the people, and were it possible to back it up with faultless medical and surgical skill, the mortality and the morbidity resulting from neglected cases of appendicitis might be eliminated.

BERNARD FANTUS, M.D.

OUR BABY'S FIRST SEVEN YEARS

Compiled by Hermien Nusbaum for the Mother's Aid of the Chicago Lying-In Hospital. Pp. 85. Price, $2.50. The Buzza Company, Chicago, 1928.

IN AN extremely artistic and handsome volume the author has assembled pages for the recording of information relative to the growth of the child and its physical condition, information for the mother as to the proper rate of growth, pages on which to assemble souvenirs, photographs and other easily retainable mementos of babyhood. The book is delightfully illustrated by Ethel Schacherer, whose clever drawings are well known to readers of HYGEIA. In the compilation of scientific data, the editor of this volume has been advised by Doctors J. K. Calvin and D. A. Horner, so that her material may be considered authentic.

For many years physicians have wanted intelligent parents to keep records of the illnesses of their children, of the manner of their birth and of their growth and development. Such facts may be of the greatest importance in making decisions later in life. A book such as this serves not only as a repository for such data but as a happy memory book for years after. The parent who carefully fills out the blanks and keeps the records will find himself more than repaid when the child's seven years are completed.

A final argument for this volume is the fact that such income as may be derived from its sale is subscribed to the Chicago Lying-In Hospital.

MORRIS FISHBEIN, M.D.

News *and* Views

From the

FIELD OF HEALTH

BEWARE OF WIRE KITE STRINGS

More than one child has been killed by electric shock when his wire kite string became entangled in telephone and telegraph wires, the National Safety Council says in a warning against using wires for kite strings. Manufacturers are being urged to discontinue making kites with conducting material on them. Metal frames have proved disastrous in several cases. Parents should tell their youngsters of this hazard and see to it that the kites contain no electrical conductors.

SCIENTISTS TO STUDY INFANTILE PARALYSIS

A three years' study of infantile paralysis, which has killed or maimed thousands within the past decade, will be conducted in six of the world's leading medical laboratories, the International Committee for the Study of Infantile Paralysis has just announced. The attack on the disease is made possible through a gift of $250,000 made recently by Jeremiah Milbank of New York.

Dr. William H. Park of New York University, director of the bureau of laboratories of the New York City department of health, is chairman of the committee and Dr. Joseph A. Blake, New York surgeon, is vice chairman.

Participating in the research will be Chicago, Columbia, Harvard and New York universities in this country, the University of Brussels and the Lister Institute in London.

LIVER IS AN AID TO APPETITE

Liver, once known as "the poor man's beefsteak," has commanded new respect since it has been found to be of remarkable benefit in the treatment of pernicious anemia. Now another valuable use for this meat has been established in the treatment of children suffering from lack of appetite, according to *The Journal* of the American Medical Association.

An investigator compared the gains of weight induced by various measures and found that the addition of fresh calf's liver, broiled beefsteak and lamb's kidneys to the diet of children was the most efficient treatment for chronic loss of appetite.

The significance of these observations is apparent when it is considered that lack of appetite is one of the commonest symptoms in children. A study of 1,000 records at the Massachusetts General Hospital showed that the five commonest reasons for bringing children to the outpatient clinic were: loss of appetite, cough or cold, physical examination for admission to the public school, pallor and underweight. About one fourth of the children in this group were suffering from poor appetites.

GARDENING FOR HEALTH AND WEALTH

Does a back yard garden pay? Most of those who argue this question consider it only in the economic aspect, but this is a mistake, says the Illinois department of health. The real value of a garden lies in the fact that the family with a garden eats more vegetables than the one that buys and in the further fact that gardening is excellent exercise.

Vegetables are an important factor in cutting down bills from doctor and dentist. They are the sources of some of the most necessary food factors. Those with green leaves furnish vitamins and are the best kind of laxative available. Minerals like iron, lime and phosphorus, which are so important in building bones and teeth, are found in greatest abundance in vegetables.

Gardening can be overdone like any other physical exertion. A person who is not accustomed to vigorous exercise should not try to dig up the whole place in one day. Taken discreetly, there are few things that pay bigger dividends in health and money than gardening.

STARTS GYMNASIUM FOR BABIES

A gymnasium for babies less than 1 year old is the latest thing in exercise, introduced in Berlin recently by a former officer of the German army. The babies, dressed in regulation gymnasium suits of infinitesimal dimensions, are laid on flannel-covered tables and put through their exercises by trained assistants, one for each baby.

Major Neumann-Neurode, director of the novel gymnasium, first experimented with his own children. He believes that the exercises will cure or prevent many defects of the spine. They are also said to be useful for children who develop slowly as a result of nervous disease or of injury to the head at birth.

SPRING CLEANING IN CLEVELAND

Cleveland maintains its reputation for cleanliness by an annual clean-up week under the leadership of the Cleveland Health Council and the city health department.

The annual purification is both public and private. Vacant lots that usually look as if they were nobody's business are cleared of rubbish and dirt. Alleys are rid of tin cans and scrap paper. Smoky chimneys and fire hazards are corrected. Information on the agencies that collect old clothing, old magazines, bottles and the vast miscellany that accumulates during the winter is broadcast. Gardens are planted and lawns are tended and trimmed.

Cleveland believes that turning the spotlight on the campaign has its effect during the whole year. It rouses public interest and is an aid in the dissemination of new methods. This year special emphasis was laid on food handling and clean dishes, both in private homes and in restaurants. Tests of cleanliness of dishes and of the hygienic measures necessary in handling food are to be made in the bacteriologic laboratories of Western Reserve University. From the information obtained the health department will be able to check up on the effectiveness of its supervision and make any necessary corrections.

Wide World

BLIND GYMNASTS

Who would believe these nimble athletes were blind? This tumbling formation is part of the annual gymnastic demonstration held at a Pennsylvania school for the blind.

Wide World

A DAUGHTER OF THE EAST EXCELS IN ATHLETICS

Miss Maimie Sze has been elected captain of the freshman crew and custodian of the athletic association at Wellesley College. What better sign of the emancipation of women of the Orient?

Underwood and Underwood

**"BABY RECEPTACLE.
FATHER
AND
MOTHER
HAVE DESERTED
ME.
GOD ALMIGHTY
WILL TAKE
CARE OF ME."
Inscription
on box
at
Foundling
Hospital,
Athens,
Greece.**

Pacific and Atlantic

ARMY CHILDREN AT THE PRESIDIO ARE GAINING HEALTH AND SKILL under California skies in their Sunday morning riding lessons.

Wide World

TYPICAL YOUNG AMERICA IS THIS 12 YEAR OLD NEW YORK YOUNGSTER, CHOSEN by Raymond Woog, French artist, who painted his portrait.

GOING TO THE DENTIST CHANGED THE GLUM FACE on the left to the broad grin at the right.

Fotograms

SCOUTS HELP FIGHT CANCER

Boy Scouts did more than one good turn a day during the cancer prevention drive recently made by the New York Committee of the American Society for the Control of Cancer. These five distributed posters announcing a benefit concert given by Chaliapin at the Metropolitan Opera House.

Wide World

Wide World

HEALTH COCKTAILS FOR UNDERNOURISHED CHILDREN

Cocktails of cod liver oil and orange juice give special meaning to this toast. Little Charlie Naggi and Tommy Massimimo are making up for inadequate breakfasts as guests of the Children's Aid Society at the Jones Memorial Center in New York.

WAR AGAINST DOPE NEVER ENDS

Thousands of dollars' worth of narcotics seized by government authorities are shown in the picture below. Wardrobe trunks, suitcases and dozens of ingenious methods of concealment are used by smugglers to carry on the deadly traffic.

Pacific and Atlantic

PRESCHOOL CHILDREN NEED CORRECT POSTURE

When the Villard Center of the New York Diet Kitchen Association started its experiment in health care in January, 1922, it was found that 75 per cent of the children between the ages of 2 and 6 had faulty posture.

The children sat with backs rounded, shoulder blades prominent and their chests narrow and depressed. They stood with their knees knocked, their feet turned out, their ankles turned in and their arches flat. They were ordinarily well children, but they were using their bodies at a constant strain and disadvantage.

The treatment was principally instruction to the mothers in correcting the children's faults. The physician demanded beds without pillows and chairs adjusted to the child's size so that he might eat his meals. An ordinary kitchen chair at the Center was arranged with cushions to show mothers how to manage at home without extra expense. The midday rest was insisted on.

Mothers were taught exercises for posture correction, the simplest ones that could be found. The children reported weekly at first, then every four or five weeks for observation and change in the exercise prescription. Results were slow, but they were definite and worth while, says the report in the *Public Health Nurse.*

As a result of this modest beginning the service has been introduced in many health centers, both in New York and in other cities. Such a demand for trained workers has arisen that Teachers College of Columbia University started a course in posture work in February of this year, with a demonstration center in which to train students in physical education in the application of their technic to the preschool age.

CITY DWELLERS NEED PARKS FOR REST

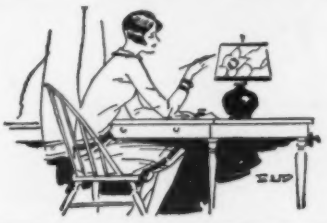
The parks of a city are the safety valves to the overwrought nerves of the mature population, says Ernest McGaffey in the *American City.* The rest and relaxation needed by the brain lashed and muscle weary are not found in the excitement of baseball, football or automobile races or in the tedium or exaggeration of moving pictures. They may be found in the contemplation of quiet waters, green grass, cultivated flowers and restful trees.

The city park is often an artificial effort to copy nature but it brings repose and beauty to men and women who cannot afford trips to the country and the reaction is both comforting and stimulating.

Scrub up, brush up! Cleanliness is half of health.

Healthy and happy Hungarian children are depicted in these three postcards from a set published by the junior section of the Hungarian Red Cross. The reproductions here were taken from the April issue of The World's Health, monthly review of the League of Red Cross Societies, Paris.

Juniors do their bit to carry out the doctor's orders.



Questions *and* Answers

If you have a question relating to health, write to "Questions and Answers," Hygeia, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed.

Strawberrries

To the Editor:—What is the health value of strawberries?

L. A. M., Pennsylvania.

Answer.—According to the tables issued by the U. S. Department of Agriculture, strawberries contain 1 per cent of protein, 1 per cent of fat and 6 per cent of carbohydrate. They have, like most other fruits, a low caloric or food value. They contain, however, important vitamins. Strawberries are one of the foods to which some persons manifest a peculiar idiosyncrasy, the eating of strawberries being followed by an eruption of the skin, such as hives, and sometimes of the mucous membranes, leading to asthma.

Cigaret Smoking

To the Editor:—I am a man 46 years old, a cigaret fiend. I smoke forty a day; have smoked them heavily for twenty-five years. When I quit using tobacco, I notice that a pronounced mental torpidity develops in about twelve days. I am unable to read, write or concentrate to any appreciable degree. It seems as if my brain "dries up." Would you kindly advise me as to the probable length of time this torpidity should last or about how long I should be in "denicotinizing?" R. E. M., Indiana.

Answer.—It is impossible to say just how long the effect of giving up smoking will endure in a particular case. It varies a good deal. It has long been known that while tobacco is poison to many people, the bad effects as a rule subside promptly when the use of tobacco is given up. One of the latest books on this subject is "Tobacco and Physical Efficiency," by Dr. Pierre Schrumpf-Pierron, published by Paul B. Hoeber, Inc., New York, price $1.85. It should be helpful to the inquirer.

Ringworm Superstition

To the Editor:—If ringworm encircles the body, will one die?

M. E. W., Illinois.

Answer.—There is not the slightest ground for the superstition that, when ringworm encircles the body, death will result.

Baby's Hair and Eyes

To the Editor:—A baby, 6 months old, has been bald since birth. Is this all right? When will hair grow? The mother and father have brown eyes, and the baby has blue eyes. Will they change? There are no blue eyes in the immediate family.

H. R., Indiana.

Answer.—The word "bald" as commonly used in relation to newborn and young infants does not necessarily mean the complete absence of hair. Rather, it is used to describe those infants who have short, fine lanugo hair; this is replaced, usually when they are about 1 year old. Congenital, inherited baldness does occur, but this is a rare condition.

The eyes of this infant will in all probability turn dark. More information about the previous generations would be necessary to determine this point.

Shortening the Colon

To the Editor:—Is the operation to shorten the colon difficult or dangerous? Would the newly joined place become as strong as the normal colon or would it be likely to give trouble later? What are the best ways of correcting gastro-enteroptosis?

D. D. M., California.

Answer.—The operation for shortening the colon is a major operation and always involves some danger. It is seldom necessary in the opinion of the more conservative surgeons. When the operation is entirely successful, the line of union is as strong as the rest of the bowel.

Prolapse of stomach or bowel is of far less importance than was formerly thought and there are few people who need any operation for this condition. Sometimes a well adjusted bandage is helpful.

Blood Pressure

To the Editor:—What is the significance of a blood pressure that deviates from the normal 3 to 2 ratio; for example, of a blood pressure of the ratio of 120 to 90?

D. D. M., California.

Answer.—There may be a considerable departure from the normal ratio without its being of great significance; if this departure is so pronounced that the so-called pulse pressure is very high or very low it may be of importance. Blood pressure should always be taken in connection with other signs and symptoms in order to determine its significance.

Operation for Bow-Legs

To the Editor:—In the April issue of Hygeia there was a statement to the effect that bow-legs could be remedied by an operation. Please give all the information you can on this, as what surgeon to go to, any special ones in the country, approximate fee and other details.

E. J. R., Minnesota.

Answer.—The usual operation for the cure of bow-legs consists in removing a wedge-shaped piece from one of the bones of the leg. This makes it possible to straighten the limb, which remains straight after the union of the severed bones. It is not advised, unless the condition is extremely deforming. The best person to perform the operation is an orthopedic surgeon. One's personal physician is the person to consult in the selection of such a specialist.

Pyorrhea; Cleft Palate

To the Editor.—Can pyorrhea be checked or cured? Or is it best to have teeth removed for fear of ruining health? Can any one with a cleft palate wear false teeth? G. W., South Dakota.

Answer.—Pyorrhea is less likely to produce constitutional infection than are concealed infections at the apexes of the teeth, because there is a free discharge of pus from pyorrhea into the mouth.

In a very few cases of cleft palate, false teeth cannot be worn because the opening in the roof of the mouth makes it impossible to obtain the

necessary suction to hold the plate in place. In most cases the cleft is not too large, and what is called an obturator is first made. This is a device of the exact shape of the cleft, which, when placed in position, fills the opening and closes it so completely that the dental plate carrying the teeth can be retained in place.

Infection After Removal of Teeth

To the Editor:—Is it possible that the extraction of one or two abscessed teeth from the mouth of a person sick with influenza, would cause the distribution of pus infection through the system? This patient is about 70 years old. A. T. M., Arkansas.

Answer.—Systemic infections following extractions of teeth are not uncommon even when patients do not have acute infections like influenza. Nor is this evidence that the teeth were badly infected, because after such extractions there are open wounds in the mouth and streptococci can readily gain access to the circulation through them.

Cod Liver Oil; Mineral Oil

To the Editor:—1. Does freezing kill the vitamins in cod liver oil? 2. A large mail order house is offering an imported Russian mineral oil, either in bottled form or in large cans, at a reasonable price. Is it safe to use this oil when bowel action is sluggish? G. P. B., Montana.

Answer.—1. It is not probable that freezing would materially affect the vitamin activity of cod liver oil.

2. Any mineral oil preparation is satisfactory, the chief difference in the preparations being in the freedom from unpleasant taste in the more thoroughly refined preparations. It is better not to use a laxative if one can secure regularity of bowel movement through diet, exercise and the free use of water, but if corrective is necessary, mineral oil, with its purely mechanical action, is least objectionable.

Infant Feeding

To the Editor:—At what age should a baby be fed and what and how often? My baby is breast fed but takes orange juice once a day. When he sees a glass or cup he acts hungry and grabs for the cup so greedily that I am wondering whether he gets enough to eat. He drinks plenty of water and at 6 months weighs 18 pounds. Do you think the breast milk is strong enough for him? H. R., Indiana.

Answer.—The time to start feeding from spoon or cup must be determined by the condition and reaction of the individual infant. It is of advantage to accustom a breast-fed infant to taking water and food from a bottle at an early age. It is occasionally difficult to feed an infant if an abrupt change is demanded because of some forced circumstance, such as illness of the mother.

A word of warning should be given. It often happens, unless care is exercised, that an infant will refuse the breast in preference to a bottle. This may be due to difficulty in nursing from short nipples, scanty supply of milk, or what not.

At 3 or 4 months it is often possible to feed cereal from a spoon and for the infant to drink from a cup. Often this is a more laborious process for the mother, and as her time is limited bottle feedings should be continued. During the last half of the first year feedings with a spoon and giving liquids from a cup may be carried out with little more effort and should be practiced. This avoids the difficulty encountered in the second and even third years if bottle feedings are continued.

A breast-fed infant of 6 months that weighs 18 pounds is full weight and is probably getting sufficient food. Cereal and vegetable soup should be added to the diet if there is no reason for the child's not having it.

Arch Supports

To the Editor:—Of what value are the arch supports commonly advertised? Do the claims made for them have any scientific foundation? E. A. A., Kansas.

Answer.—Arch supports should not be used as a panacea for all foot ailments. As a rule they are made to sell and not to wear. Many thousand people are buying and wearing commercial arch supports because some shoe salesman has advised their use. It has been intimated that shoe salesmen receive a special commission when they sell some commercial arch supports; hence their desire to see the need for arch supports in the shoes of every person with some foot ailment.

If these salesmen would devote as much energy in fitting customers with proper shoes, as they do in trying to sell arch supports, the public would have less complaint about feet.

Occasionally the use of arch supports is indicated and then they should be made to fit the particular foot by an orthopedic surgeon. No two feet are alike, so how can any stock arch support fit a foot so that it will be comfortable and efficient? Hence, how can commercial arch supports fit an abnormal foot?

Feet as a rule give trouble because they do not have proper muscle power. Any appliance to the foot restricts the normal muscle action and hence the vicious cycle is established.

Scarlet Fever Inoculation

To the Editor:—Will you kindly give me information regarding the effectiveness of the scarlet fever preventive? What percentage of effectiveness does it have? Is there a possibility of causing a skin eruption? Is it as successful as diphtheria toxin-antitoxin? Has it been accepted and approved by the A. M. A.? How long does immunity last? F. V., California.

Answer.—The preventive injection of scarlet fever toxin in susceptible persons produces an effective immunity provided it is carried out in the proper way until a clean cut negative Dick test is obtained. If the proper kind of toxin is used there will be no complicating skin eruptions. How long the resulting immunity may last is not yet known but experience indicates that it may last at least two or three years and probably much longer.

Observations on nurses who take care of scarlet fever patients show that the immunization of susceptible persons against scarlet fever gives just as good results as immunizations against diphtheria with toxin-antitoxin.

Scarlet fever toxin for preventive purposes has been accepted by the council on pharmacy and chemistry of the American Medical Association.

The family physician is the one to decide when the circumstances and conditions present warrant the use of preventive inoculation against scarlet fever.

Pores of the Skin

To the Editor:—Is it true that vanishing cream enlarges the pores? Is liquid powder base better to use than vanishing cream? F. W., Indiana.

Answer.—There is no evidence that any local application enlarges the pores. From some cause, which is not definitely known, the sebaceous glands in some persons become hyperactive and secrete more oily material than is normal; associated with this hyperactivity the glandular ducts or pores of the skin become so enlarged that they can be seen without a magnifying lens.

If the skin is oily, a liquid that leaves a powder on the skin will usually be more satisfactory. If the skin is dry and rough or scaling at times, oily preparations will be more effective. In the majority of cases the use of soap and water on the face for cleansing purposes is preferable to the use of various creams for the same purpose.

Capacity of Stomach

To the Editor:—I understand that the stomach holds about 1 pint. Many eat more than that at every meal including milk and water. I frequently drink a quart of buttermilk. Of course, the stomach has to stretch. Now, is that good for one or should one not take more than a pint at a time?

A. S. V., Georgia.

Answer.—The capacity of the stomach varies to a considerable degree and the adult stomach frequently holds much more than a pint. Food taken, especially liquid, is constantly passing from the stomach into the intestines and therefore when such liquids are taken slowly, a considerable part of that which is first taken in may have left the stomach before the last portion is swallowed.

Deafness in Child

To the Editor:—My baby girl, a bright child, of happy disposition, is totally deaf. She is able to say a few words and can read my lips to some extent. There is a public school for the deaf in this city to which I intend to send her as soon as they will take her. I do not want her to grow up despondent over her handicap. I should like to be able to teach her as much as possible at home before she can enter school. Could you tell me the address of the nearest league for the hard of hearing?

D. P. H., Wisconsin.

Answer.—There is some doubt whether the child is totally deaf. Unfortunately, her exact age is not stated but totally deafened children are never able to say a few words without expert teaching, and this is only acquired by school training under special teachers.

An expert otologist should be consulted as to whether this child may not have some degree of actual hearing. This is important, in order that the child may be guided into proper educational channels. The mother's desire to teach the child as much as possible at home is commendable. The mother should avail herself of the opportunity of studying lip-reading in the public school for the deaf; this will be of inestimable value to the child during her entire educational career. Children easily learn the art of lip-reading.

If this child has a remnant of hearing her education will be simplified, for she may be aided by some of the various hearing devices. For general information regarding all phases of the hearing problem one should inquire of the American Federation of Organizations for the Hard of Hearing, 1601 35th St., N.W., Washington, D. C., particularly regarding the locations of the constituent leagues for the hard of hearing throughout the country.

The parents must be sure to consult a competent otologist.

Ovaltine

To the Editor:—Would you please send me the formula for Ovaltine, as I am desirous of knowing whether it is beneficial to one's health.

F. S., New York.

Answer.—Ovaltine is essentially a chocolate flavored malted milk to which has been added a small amount of dried egg substance. Naturally, it possesses the virtues and limitations of such a mixture. Doubtless, a glass of warm Ovaltine, taken just before retiring, favors sleep. So does a glass of warm milk, or even a glass of warm water, and for exactly the same reason. According to the manufacturer, Ovaltine has the following chemical composition:

	Per cent
Protein (N x 6.3)	14.2
Fat	8.01
Reducing sugars	60.1
Dextrin	7.8
Ash	3.76
Organic phosphorus (Calculated as P_2O_5)	1.18

Further, according to the manufacturer's own figures, Ovaltine has an energy value of 1,864 calories to the pound. The amount of Ovaltine recommended for a glassful is two teaspoonfuls, which would give approximately 50 calories, or the equivalent in energy value of a graham cracker weighing ½ ounce. If the Ovaltine is made up with a glass of milk instead of water, the milk would add 170 calories, so that the finished mixture would have an energy value of about 3½ graham crackers, each weighing ½ ounce.

Treatment for Rabies

To the Editor:—In a recent health bulletin I read the following statement: "Bites by rabid animals or animals suspected of being rabid may be treated by cauterization with fuming nitric acid. This method is helpful if used within forty-eight hours, but the earlier, the better. In case of bites on the face there is special need for immediate treatment with the fuming nitric acid, for the action of the rabies virus may be so rapid that the Pasteur treatment will not have time to take full effect. Nitric acid does not cause bad scarring." I should like to know how to apply the acid and whether the acid should be diluted.

M. Mc., Oklahoma.

Answer.—Cauterization of bites by rabid animals or animals suspected of being rabid has long been accepted as a good form of treatment if carried out immediately after the injury. If cauterization is delayed after a period of twenty-four hours, its benefit is doubtful.

To cauterize a bite, fuming nitric acid or 95 per cent carbolic acid may be used. These acids are used undiluted and great care must be exercised with them. The acid may be applied with a fine glass rod or the tip of a silver probe directly to the wound. It is only necessary to moisten the end of the glass rod or probe with the acid and not to have the acid dripping from it. While the edges of the skin wound as well as the deeper tissues should be cauterized, no acid should come in contact with the surface of the skin except at points of injury.

If carbolic acid is selected, the wound may be sponged off with 95 per cent alcohol following cauterization. The wound should not be sealed up by means of tight sutures or by collodion.

Cigaret Smoking

To the Editor:—I have been an inveterate cigaret smoker since 1901. I have tried to stop several times by will power and have abstained about two weeks. However, I noticed that there developed a pronounced torpidity in my mental functioning. It manifests itself particularly in my efforts to concentrate in reading and writing. How can I overcome this condition? How long do you suppose it would be before this condition would be adjusted by nature? I am 45 years old. Lately I tried a tobacco cure of a well known institution, but as I have a weak stomach I had to quit it.

R. E. M., Indiana.

Answer.—There is no special treatment that has been successfully used at any place for the tobacco habit. Doubtless general hygienic measures, with good elimination, help in breaking the habit.

"Ex-Lax"; Weight

To the Editor:—1. What are the ingredients of the chocolate laxative Ex-Lax? Is it harmful? 2. What is the proper weight for a girl 23 years old, height 5 feet 4 inches?

K. S., Connecticut.

Answer.—1. The Bureau of Investigation of the American Medical Association reports that "Ex-Lax" has been found to be a chocolate covered tablet of phenolphthalein. The persistent use of any laxative of this sort is likely to be harmful.

2. The average weight for a girl of 23 years, height 5 feet 4 inches is 127 pounds. But one's weight might vary several pounds either way from this average without serious consequences.